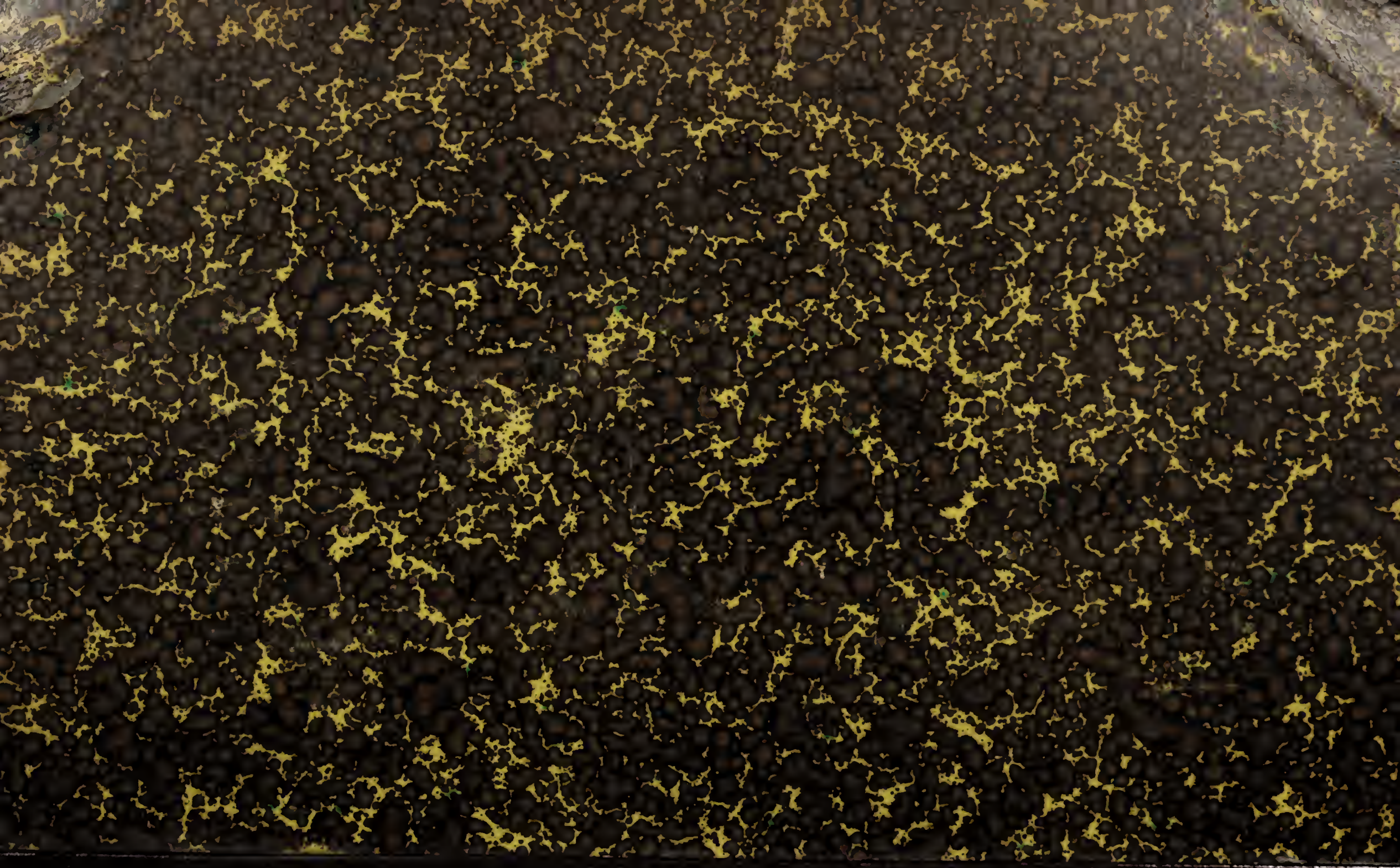

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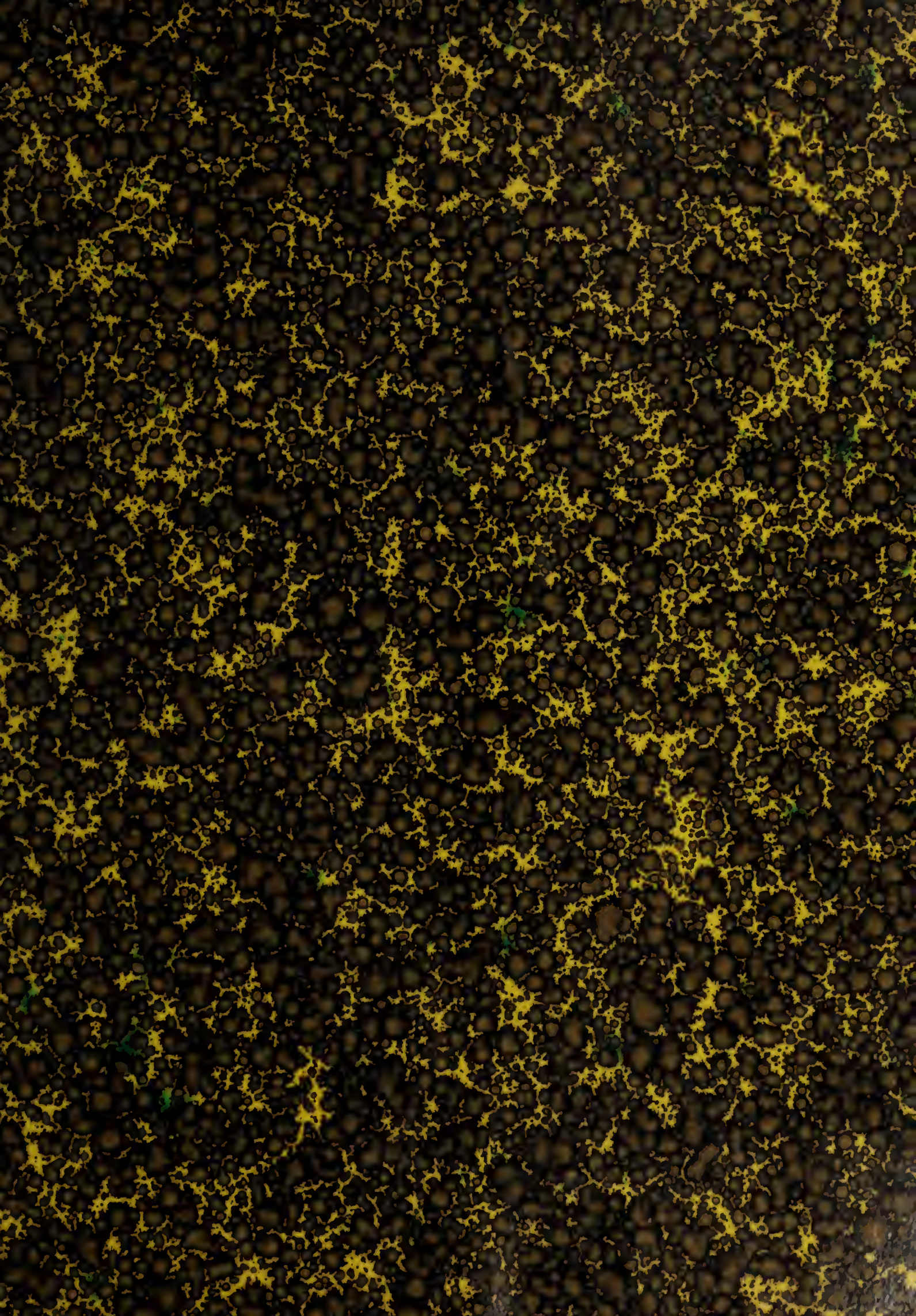

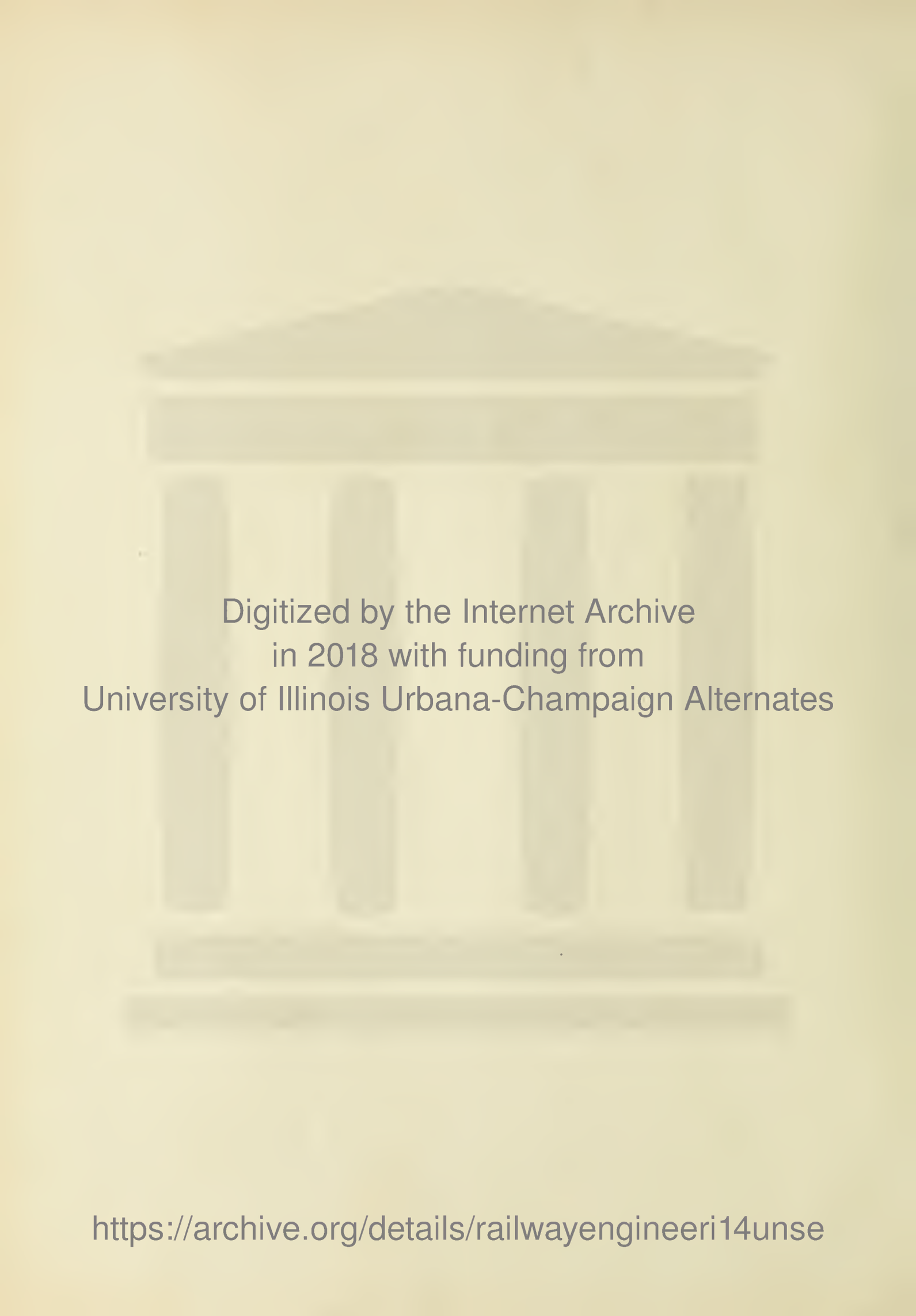
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Railway Journal

PUBLISHED MONTHLY AT CHICAGO, ILL.
BY THE FAITHORN COMPANY.

Address all communications to
RAILWAY JOURNAL, 66 Sherman Street, Chicago, Ill.

OFFICIAL ORGAN NATIONAL ASSOCIATION OF RAILWAY AGENTS,
THE NATIONAL ASSOCIATION OF FREIGHT TRAFFIC AGENTS,
THE INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION,
THE INTERNATIONAL MASTER BOILER MAKERS' ASSOCIATION,
AND OF THE INTERNATIONAL RAILWAY GENERAL FOREMENS' ASSOCIATION.

Entered at the Post Office at Chicago, Ill., as second class matter.

W. E. FAITHORN - - - - - Business Manager
E. C. COOK - - - - - - - Editor
W. B. BARR - - - - - Associate Editor

SUBSCRIPTION PRICE, - One Dollar per Year, Ten Cents per Copy

ADVERTISING RATES FURNISHED ON APPLICATION.

All railway officials and the public in general are warned against granting courtesies to or transacting business with any persons on account of the RAILWAY JOURNAL, except those duly authorized.

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THE RAILWAY JOURNAL AND PUBLICITY.

In the initial efforts of our paper endeavoring to bring about a better state of affairs between the people and the transportation companies, we were deeply impressed with the idea that frankness to the extent of self-criticism of the most open character, was the best and safest course. We felt that even a paper limited to the circle which a trade publication can hope to reach, must at times fall into other hands than those of distinctly railway connections, and that when lay readers saw impartial views given over the signatures of leading railroad officers, commending our course, the results must be beneficial. We have been glad to note our conjectures in this way as true. Had we in the start intended to seek an early popularity, with no regard for the purpose in mind, a more politic course might have marked our comments. We have, however, established connections of influence and national importance in the way of meeting the public in a conciliatory and just manner, which are far more desirable for us than any purely financial gain from our efforts. Our scope of observation has been constantly widening and the number of prominent men who are encouraging us regularly increasing, while the men who are editorially engaged with papers and magazines of general circulation are willing to accept us as authority for sentiments accurately reported when we have attempted to gauge public opinion. In this direction we believe we have been useful in the line of policy we have been following. There is much truth in a late "Roycroft reminder," reading: "Freedom and truth are Siamese twins," and this epigram quite naturally states our case. We have been free to do what we thought best and we have told the truth when we spoke. Our editorial comments have not been confined to the columns of the RAILWAY JOURNAL, having taken a considerably larger range when our leisure permitted, and we thank sincerely those who are co-operating with us along the lines we mention. Their assistance has been thoroughly appreciated. We are sincere believers in Federal incorporation for our common carriers to create general harmony, in the protection of our forests, the adjustment of our lumber tariffs to meet the changing conditions in our sources of supply, especially in respect to the movement of foreign lumber into this country, and the early and continuous improvement of our waterways to give proper auxiliary aid in moving our traffic. There are other complimentary conditions we favor, but those named are urgent ones.

PRESIDENT DELANO'S SURVEY OF RAILWAY CONDITIONS.

Below are some comments from President Delano of the Wabash Railway in the form of questions and answers thereto which are quite complete in the way that they cover the present railway conditions and requirements. They are proof of much careful thought concerning the situation and are entitled to a very careful reading as well as to being remembered with equal care. His remarks are as follows:

1. To how great an extent do you find that the unsettled financial situation has reduced the business upon your line? Do you believe that any effect which it may have produced is merely temporary, or do you anticipate a substantial decline in your business during the next year?

Our business on the lines west of Toledo seems to have been reduced about 10 per cent, on the lines east of Toledo

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rather more than that. This is apparently due to the fact that the lines west of Toledo are less dependent on manufactured products and more on agricultural products.

I believe we have gotten down to the low-water mark of our conditions and that the business of the country will slowly improve from now on.

2. In your judgment are railway capital issues during the coming year likely to take the form of long-time bonds, short-time notes or stock? How, in your opinion, will the rates on railway loans compare with the abnormal rates of 1907?

In my judgment long-time bonds of high grade will sell pretty well during the year of 1908, but I am afraid there will be little or no sale for short-time securities, or for second-rate bonds, regardless of rates of interest.

3. Has the operation of the Interstate Commerce law, as amended by the Hepburn Act, met your expectations? What are the most important effects which have been produced by it?

The Interstate Commerce law, as amended by the Hepburn Act, has operated about as I expected. It should be noted, however, that the determination on the part of the Federal Government to enforce the law, rather than the actual law itself, is what has wrought the principal improvement in the entire maintenance of rates and the discontinuance of improper, as well as illegal practices. As many railroad officials pointed out before the Hepburn law was passed, the old law went pretty far, and the reason the public got the idea that it was inadequate was that it was never enforced. Every single indictment against railway companies and other corporations has been under the old Interstate Commerce Act and the Elkins' amendment. Of course, the most important effect in the enforcement of the law has been the entire discontinuance of rebates, etc. A very important effect which has come from the new law has been the operation of the thirty-day clause. The operation of this law, and the great cost of preparation of tariffs, has made much less frequent any changes in tariffs, and it is becoming more and more evident to railway men that tariffs are becoming more and more inflexible. While there are some great advantages, there are also some marked disadvantages in this. In other words, there is a good deal to be said on both sides of this question.

4. What additional legislation, if any, for the amendment of the Interstate Commerce law or of the Sherman Act as it applies to railways, do you favor?

I should be glad to see the Sherman Anti-trust law—which was an insincere piece of legislation when it was passed and which remained a dead-letter on the statute books for twenty years after it was passed—made so that it would be more consonant with actual business methods. I think this is all the railroads need. We want no more railroad legislation for awhile; we are having a hard enough time adjusting ourselves to the laws—State and Federal—which have already been passed.

5. Do you believe that legislation by Congress or any other action by the Federal Government is possible or desirable to prevent state legislatures from passing laws or state railroad commissions from issuing orders regarding rates, car service, etc., that directly and necessarily interfere with interstate commerce?

It would undoubtedly be easier for the railroad official to submit to regulation by only one central body, instead of a multiplicity of legislatures; but as a private citizen, I think that there is great danger of over centralization. The railroad I am connected with runs through seven states, and in none of these have we been dealt with so harshly or so inconsiderately as by the Federal Government in the matter of compensation for carrying the mails. In that case, after Congress had made changes in the law which resulted in a diminution of our earnings by about 10 per cent, the Postmaster General, on the day of the adjournment of Congress, made a further reduction of about 15 per cent; so that the compensation within the last year has been cut 25 per cent, without giving us "our day in court," and, as is well known, the old principle that the King can do no wrong and therefore that the General Government cannot be sued, leaves us without a defense.

6. Do you believe that the tendency of recent state regulation of railways is to seriously affect their earning capacity and to impair the confidence of investors in their securities? If not, to what do you attribute the recent decline in their capital issues?

It is impossible to answer this question briefly. The hostile attitude of legislation has had something to do with it, but that has not been all. The trouble with most legislation has been that it has been drawn up with very imperfect knowledge of the conditions. This has been equally true of Federal and State legislation. The problems in connection with railway operation are too complex to be thoroughly comprehended by members of legislatures at large.

But to lay the entire loss of confidence of investors to the action of legislatures would not be fair. There are many causes at work, and the management of corporate property of all kinds should undoubtedly share this responsibility.

7. What are your views on the new system of accounting prescribed for interstate railways by the Interstate Commerce Commission?

It is in the main excellent; but it was unfortunately adopted without any consideration by the actual executive and responsible officers of railroads. It is, however, a surprisingly able classification in most respects.

8. Do you believe that the adoption and application of a uniform classification of freight is practical or desirable?

Yes, I believe that it is both practicable and desirable, though exceedingly difficult of accomplishment.

9. Do you believe that the relations between the public and the railways are growing more harmonious or less harmonious, and what do you deem most essential to produce a better understanding between them?

I think the organization of the management of railroad property is, on the whole, very defective. There is an excessive centralization in management, which results in a few men being very much overloaded and unable to deal with many problems which they ought to deal with as *patiently* and *carefully* as is necessary. This makes it impossible for the executive heads of many railroads to meet with the leaders of public opinion in various communities, and hence these same executive officers are less in touch with the needs of the community, and the leaders of public opinion in each community know less about the difficulties of railroad operation than they should.

What is needed in railway operation, is an effective local self-government, with a good deal of authority by local officers; combined with which there should be an intelligent central supervision. But when this central supervision takes away from the local officers all important decisions, they make the operations of the railroad more difficult, while greatly overloading the functionaries who are charged with the sole responsibility.

10. What are your views on the question of freight car supply and freight car movement, delays in handling freight, congestion of yards and terminals, and the popular demand for enlargement of waterways to compete with railways?

Officials of railroads understand the needs of railroads quite as well as the public does, often much better. It needs no law to penalize a railroad manager for delay in moving equipment, or to enforce the putting in of a block system, or to add double tracks, yard and terminal facilities, etc.; every railroad manager is clamoring for these improvements to the limit of the ability of the Board of Directors to supply the necessary funds. How will the funds be supplied? Only to such extent as there is evidence, and definite evidence, that the capital invested will have a fair and reasonably certain return. The more laws that are passed against railroads, the more the public seek to create competition with railroad transportation (and so reduce rates), the more difficult will it be for railroad managers to secure the funds to make the improvements desired, not only by them, but by the public. A few men have worked themselves up to a high pitch of ardor in the matter of improved waterways in this country, but the backbone of this movement is purely selfish. It is purely an effort on the part of the commercial interests in the cities affected to create an avenue of transportation which will compete with the existing avenues, and either reduce rates, or tend to keep them down to a low level. The railroads would never have to fear water transportation if, in water transportation, all the costs were included; but, unfortunately, in water transportation the entire expense of the improvement of the waterways and maintaining them, also the interest on the investment of doing this is borne by the general taxpayers, and not by the transporter of the freight. Railroads could, of course, transport freight far more cheaply than they now do if the general government would pay all the interest charges on the cost of the roadway, supply all the terminal facilities, and maintain the road.

11. What are your expectations as to the future use of electricity as a motive power on our present steam roads?

This question awaits the developments in and near New York City. No steam railroad will try electrification while the results of the experiments in and near New York remain in doubt.

THE RAILWAY INTEREST IN A PRESIDENTIAL NOMINATION.

The late emphatic reiteration of President Roosevelt, relative to another nomination, has renewed interest concerning a successor. It has very probably given a wide scope to plans that were dormant before this. It is not improper, therefore, to say that transportation companies are very deeply interested in the question, as to whether or not the choice of a successor will be one who will sanely carry on the reform policies approved by the people, or encourage and urge more radical innovations in our laws. It is a fact, in our best estimate of the opinion of both the great political parties, that no reactionary man can get the popular support.

Mr. Bryan is, without question, to be the Democratic nominee if he lives, and we cannot see in many of his expressed views a serious divergence with the presidential policies. In the matter of government ownership, he has not so far become committed to this theory as to insist upon it in the party platform. It is probable therefore, to regard Mr. Bryan's success as not meaning more than Mr. Roosevelt has said, and also attempted to do, relating to railways.

Secretary Taft is at least conservatively in harmony with the Chief Executive, and any differences are in form and a less strenuous endeavor, rather than in essentials.

Governor Hughes, while in a qualified way unknown, has been inspiring much confidence in his executive capacity, and has clearly decided views. He cannot be stampeded into any changes and seems to first satisfy himself completely as to their wisdom in his own mind before acting. Popular clamor apparently disturbs him little.

Vice-President Fairbanks is not likely to excite fear as to any radical policy, but seems lacking in the power to create enthusiasm, though some of his addresses have been clearly and strongly in favor of an energetic effort to secure popular and needed laws. There is in some quarters an effective belief in the safe conduct of the country were he to be the Chief Executive, but as it is not of a demonstrative nature, the full force cannot be well estimated.

Senator Knox is another factor with no emphasized strength west of Pennsylvania. The Western people are not familiar enough with the real sentiments of the former attorney-general to have any more than negative ideas of him now. He might be exploited in a way to call for much attention, but it is still in the future.

Not the least in local importance comes Speaker Cannon, Illinois' "Uncle Joe." Whatever pride the state may take in his public career, and it is great, too, the gathering to his support must, we believe, be only complimentary in effect. There seems to be no considerable sentiment elsewhere calling for his nomination, and apparently it will only follow mismanagement of more likely candidates.

These are the probabilities and the possibilities politically as the RAILWAY JOURNAL sees them. What any of them may try to do if elected to be President can be estimated only, and prophesies of this sort may go far astray. The political interest of the transportation companies, then, is to further, by the fullest cooperation, with Mr. Roosevelt, those laws he endorses that will have the approval of the people and *mean so much to railways*. We have in another comment referred to these as Federal incorporation and amendments to the Sherman law. Quoting Mr. Hubbard of East Aurora, "Do it now"

NEW YORK AND THE WEST.

Frequent reports come through visitors recently in New York relative to the economies now being practised by those who were a few weeks since lavishly spending money. It is said that the stores the "spenders" patronize are now advertising goods at very attractive reductions, and all because of our late financial troubles. This condition is to be deplored, and we wish New York could follow its usual festive programme at this season of the year, but we are more or less of the opinion that New York's open and careless disregard of the future is to blame. We are further of the opinion that this same cause has crept into the west some and has also demoralized us. We are all emphatically imitative, and when the country's chief financial center goes on a period of prolonged hilarity, there is a consequent reaction, whether the intoxication be financial or only induced by liquor. Primarily it ought to have been foreseen that much of New York's revelry being largely dependent upon profitable stock operations, the festivities were near the limit some time since, and undoubtedly this was known, but probably some of the revelers had an old fiddle left, and could keep a little music going with the flames in sight. It's up to nearly everyone to say now why the usual signs were not given attention, though more particularly to New York. If anything can happen in this large nation away from the island of Manhattan, the residents of that province might have seen the great western population growing wise to the shearing process, and clipping off a few crops of wool themselves. Self-confidence was paramount, however, and everything was "off the earth" away from New York's city limits, and as they danced the people must pay the piper. Chicago has something to learn and we cite an instance. About a year since M. E. Ingalls in a New York address spoke warningly of the money put in automobiles by people who could not at all afford it. The amount was many millions. We were told the other day that an agency in Chicago, and this only one, mind you, has mortgages for $200,000 against owners of these machines who were not able to pay for them when purchased. An automobile is, in most cases, a luxury and ought generally to be the property of the man who can have it unencumbered. When the home of the owner makes the security for his purchase, or the machine itself, the result in the majority of cases is only one way in times of tight money, and that is a financial smash. If in other respects our more moderately prosperous citizens thus discount the future there is no president nor no legislation that can prevent a receiver for them in the long run. In the aggregate of individuals you have the state and in that of states the nation, hence it is easy to carry the argument to its natural deductions. It's a very good time to wake up and thank Providence things are no worse.

PROMOTION OF MR. PARADIS.

F. E. Paradis, who was for some time chief engineer of the Chicago Terminal Transfer Railroad in Chicago, was made, effective December 1st, district engineer, Western District, New York Central Railway, with office at Buffalo, N. Y. The importance of this appointment speaks for itself of the capacity of Mr. Paradis in his profession, and his future field of operations seems to present the widest range of opportunity.

IF SUCH AN INVESTIGATION WERE HELD.

If, seated in the comfortable quarters provided by the United States Court, were the members of a Federal Commission, occupying that part set off for the judges, and before them in the audience were shippers and officers of railways; if the question to be investigated were that of the result of combinations in their power to eliminate competition and restrain trade, might not this happen?

An attorney for the government, keen and alert, would call for the men who were to testify in their proper order. Very soon one of the "top notchers" or "high joints" as the subordinate staffs know them, would be placed upon the stand.

"What are your duties, Mr. Blank, in your official capacity?" might be asked by a commissioner.

Mr. Blank would reply: "I look after the freight and passenger traffic of my company, and from my survey of the conditions, shape the policy of our lines."

"Is it your idea that the combination of lines in competing territory is in restraint of trade?"

"No, Sir."

"Is not the result one that prevents competition in rates?"

"Not always."

"What are the probabilities for competition in rates when all lines are more or less in alliance?"

"The probabilities are that the rates will be the same, but there is a possibility that they may differ."

"If they are the same, how can competition exist?"

"In the character of the service in expediting business and general facilities furnished. Each interest, when there is a separate organization, is earnest in its efforts to make an individual record."

"Would this be the case when it was found to affect the situation upon the entire combination by taking traffic over some special route when another might prefer and demand it?"

"My impression is that it would curtail solicitation some."

"Would it not curtail service also?"

"It might, but I assume that the service would in all cases be as good as conditions would permit."

This witness would then be excused and one of the leading shippers might be called to the stand and questioned in about this way:

"What effect, in your opinion, has the combination of parallel lines upon competitive rates?"

"It eliminates competition."

"Is competition in rates necessary to promote general business?"

"The public has always been taught that it is the life of trade."

"Are not competitive rates as generally known preferential rates instead?"

"They are, unless public and open to all shippers. If the construction and location of a line of road permits it to handle business at a profit more cheaply than another road, it is proper to take advantage of its circumstances."

"What is your opinion about the service when lines being made non-competitive by combination, rates are not a factor?"

"The service can be equally as good, but it is possible of being worse. There can be also discrimination in service as well as in rates."

"Do you believe competitive rates promote general business?"

"They often increase the volume of traffic, at least in many lines."

"What effect has competition in rates upon the number of interests engaged in any line of business?"

"They will be limited to the strongest interests available to such rates."

"If competition in rates does not limit the movement of traffic, does it not limit the number of men controlling it, and, therefore, restrict opportunity?"

"That may be true; I cannot say."

The second witness being excused, could be succeeded by a man of prominence in traffic matters and known as an expert. The following questions and replies might be the result:

"In your opinion, are combinations of parallel lines to be regarded as eliminating competition in rates?"

"Yes, Sir, they do in the usual meaning of that phrase. Competition in rates has been generally known as permitting certain interests to have better rate bases than other interests, or, in reality, preferential rates. In the years past these have been sometimes secret rates, but now, and for a long while heretofore, rates are the published tariff charges. These charges are practically the same to all points reached by parallel lines under combinations."

"This being the case, are these combinations in restraint of trade?"

"No, Sir. Trade is only restrained when your honorable body finds consumption limited by unfair or oppressive rates. Stable rates are only to be insured by equality in charges under similar circumstances. Competition for business should be between the producers, affected only by geographical nearness to markets and their ability to manufacture more cheaply, and not by the cost of transportation."

"Is it not a business proposition that a line which can afford to handle freight cheaper than another line at a profit should so arrange its tariffs?"

"Theoretically the proposition is correct, but because of the interwoven interests brought about by the crossing of railways with each other, thus affecting a common territory, the whole transportation system can be seriously disturbed. The effect may be to force a rate charge in a large region well served at the time, to so low a basis that the road most important to it is bankrupted, and the general business not at all increased, but simply ruinously diverted."

"What is your idea of service under the system of combination being now considered?"

"There is no reason why it cannot be better. The necessary service can be more economically given and it ought to improve."

This witness being excused and another important shipper called to the stand, the following might ensue:

"You have heard the questions and replies in this examination?"

"Yes, Sir."

"Will you please let us have your opinion from the standpoint of a shipper as to conditions considered, taking them in order?"

"I will try to. I am positive that the tendency to combine parallel lines has in view the prevention of unequal rates. The intelligent shipper ought to encourage equal conditions. The factors in controlling business ought to be nearness to consumer and the cost of manufacture. With the rate factor the same where the

circumstances are alike, the shipper can build his business upon a permanent basis. It is true that rates may be too high and thus interrupt the movement to market, but that can now be legally righted. It is also true that rates can be too low and bring about poor service, but that, too, can be prevented by the same process of appeal to your commission. If the government were to inaugurate Federal incorporation so that national regulation would mean uniformity in railway affairs, not to be disturbed by state laws, the present situation would be very satisfactory. As the service is possible of such changes as might be serious in combinations of competing lines, I am not in favor of more than an agreement between the lines of a character which meets the approval of proper government representatives. Unrestricted authority of this sort is giving too much latitude. I am, after careful investigation, entirely convinced that, while railways must be regulated, they cannot be hampered by politics. They must be a business proposition strictly. Personally, I am not in favor of the valuation of railway properties to establish a rate basis because it is susceptible of too many interpretations. Much as railways cost, they are the basis of our growth. Publicity of their financial transactions and uniformity in accounts will prevent unwise issues of securities and protect the future, both for the shipper and for the investor. I believe in treating railways as a business interest and not as a game for either the speculator or the politician. W. B. B.

SETTLEMENT ON BRITISH RAILWAYS.

Everyone will be interested in the following synopsis of the settlement arrived at between the representatives of the railway companies of Great Britain and the representatives of the Amalgamated Society of Railway Servants, details of which in the English press have just been received:

TERMS OF BRITISH RAILWAY SETTLEMENT.

This settlement was agreed to on behalf of all the leading companies in Great Britain on the one side and the officials of the Amalgamated Society of Railway Servants on the other, and accepted by the Associated Society of Locomotive Engineers and Firemen and the General Railway Workers' Union, thus making it binding on practically all the railway employers and employes.

First—Boards of conciliation are to be formed for each railway company which adheres to the scheme to deal with questions referred to them either by the company or its employes relating to the rates of wages and hours of labor of any class of employes which cannot be mutually settled through the usual channels.

Second—The various grades of employes of the company are grouped in a suitable number of sections. The employes belonging to each section so grouped to choose from among themselves representatives to form the employes' side to meet representatives of the company to deal with rates of wages and hours of labor, exclusively affecting grades of employes within that section.

Third—Where a sectional board fails to arrive at a settlement, the question to be referred to a central board composed of representatives of the company and one or more representatives chosen from the employes' side of each sectional board.

Fourth—Should the conciliation boards be unable to arrive at an agreement, the subject of difference to be referred to arbitration. A single arbitrator appointed by agreement between the two sides, or in default of such agreement, by the speaker of the House of Commons and the master of rolls. Or in the absence or inability of one of them to act, then by the remaining one. The decision of the arbitrator shall be binding on all parties.

Fifth—After six years either party may give notice that it desires to withdraw from the agreement at the end of twelve months.

Sixth—If any question should arise as to the interpretation of this scheme, it is to be decided by the Board of Trade or by the master of the rolls.

FAVORS WATERWAYS.

President W. W. Finley of the Southern Railway addressed the National Rivers and Harbors Congress at Washington on December 5th, in which he said in part:

Water transportation and rail transportation largely supplement each other. Not only is it true that railway facilities can be provided in many localities where waterways would be absolutely impracticable, but in parts of the United States the waterways are closed by ice during the winter months, and the communities adjacent to them must depend, for the time being, wholly upon the railways. But, in localities where navigation is not suspended during the winter months, and during the summer months in the northern section, the railways and the waterways do business successfully side by side.

To a large extent, the waterways are feeders of the railways, and the railways, in turn, are feeders of the waterways. There is competition between them for a large proportion of the traffic that is accessible to both, but there is a constant tendency toward an economic division of the traffic along fairly well-defined lines—the railway carrying, as a rule, the larger share of the passenger business and of the higher classes of freight and all freights requiring especially quick movement, including perishable products. On the other hand, the cargoes of the water carriers are generally made up, in most part, of commodities of the heavier and coarser kinds. Not only in this country, but in Europe as well, there is this general tendency to a division of traffic between water and rail carriers along these same lines, and we may, with advantage, study the results that have been attained in countries where facilities for water transportation have been more fully developed than in the United States.

It has been the policy of the company which I have the honor to represent to encourage the establishment of coastwise steamer lines, as it has believed that the provision of additional facilities for water transportation would tend to increase the population and prosperity of the seaboard communities, thus, and also as feeders, benefiting the railways. In the same way, I believe that the construction of the Panama Canal will benefit, rather than injure, the trans-continental railways, as it will tend to build up the Pacific Coast States, and, while taking some traffic from the roads, will give them increased traffic of other classes.

The election of T. P. Shonts to the presidency of the Chicago & Alton Railway in its absorption by the Toledo, St. Louis & Western Company was foreseen and has met with general approval, the new chief executive being well known and popular in Chicago. The election will not change Mr. Shonts' headquarters, which remain in New York. Much gratification is heard at the selection of George H. Ross for the Alton property, as its local manager with the title of vice-president. His experience with the Chicago, Burlington & Quincy and the Indiana, Illinois & Iowa systems before he went to the Toledo lines, fits him for his present incumbency, because its requirements and possibilities are well known to him. There are not likely to be any complaints from the public in their relations with the Chicago & Alton road, of a personal character. Modesty and courtesy are a large part of the vice-president's make-up, and these supplement his recognized ability so well, that the result is popularity. Constant occupation in office high in railway counsels, is proof of his capacity, more satisfying than any lengthy personal tribute.

The report of the Interstate Commerce Commission recently published shows that the gross earnings of the railways increased $243,382,761, over the previous year. Net income passing the billion mark is $1,045,327,487. The earnings available for dividends are $385,186,328, a gain of $60,000,000. The number of railway employes is 1,521,355 an increase of 139,159 over the previous year and their wages $900,801,653—altogether quite satisfactory and not a pessimistic showing.

A POPULAR RAIL JOINT.

The Rail Joint Company is the exclusive maker of base supporting rail joints and is the largest producer of rail joints in the United States. The application of its product to both steam and electric railroad use is growing in popularity all over the world. During 1907 the output of the company was in excess of any previous year. All the various types manufactured by the Rail Joint Company for standard and special rail sections, also the step or compromise and insulating rail joints, have the greatest amount of contact bearing surface, and that fact eliminates the destructive features which are commonly known in weaker appliances. The application to tee and girder rails for steam and electric railroad use has become universal, as they present a higher degree of permanency than any appliance that has ever been used. The general aggressive policy of the Rail Joint Company has been fruitful of highly creditable results. In the development of its business it has reached out and broadened until its products are known in all railroad centers. It has had in view the acquainting of the interested circles with the fact that its product is representative of the furthest point of progress that has been made to date in the rail joint industry, a fact, by the way, which it is impossible to deny, and is well exemplified by the increasing business that the company now enjoys. In the contract of the Panama Railroad, the government engineers approved of the continuous type for their entire work, and the best engineers in the United States, also Japan and other foreign countries, have done likewise. The total quantity shipped for steam and electric railroads up to date is more than sufficient to equip a railroad that would encircle the earth. From present indications the outlook for business for the coming year is good, and the company is hopeful of continuing its large output during 1908.

THE PUBLIC AND INTERSTATE RATES.

The press of the new state of Oklahoma has become greatly exercised about the actions of the roads running through that commonwealth into Kansas because they have been slow in applying a through 2-cent interstate rate. Some of the editorials published contain more or less animus, which we believe would have been left out had the writers taken the trouble to find out why the interstate roads did not put into effect the desired rate immediately upon the inauguration of the new state, as both that state and Kansas have 2 cents per mile laws.

An explanation, clear and concise, is given by W. J. Black, passenger traffic manager of the Santa Fe, which should satisfy the public that the roads are not only doing the right thing by the traveling public, but are also complying with the letter and spirit of the law regulating such matters. Mr. Black's explanation is as follows:

> It requires special permission from the Interstate Commerce Commission to change interstate passenger or freight rates on less than thirty days' notice to the public and the Commission. All of the principal Oklahoma lines have applied to the Commission for this permission; if granted, interstate rates to and from Oklahoma will be changed in the next week or ten days. It takes time, much thought and the consideration of numerous features to reconstruct local tariffs and district rate sheets for the entire western country, a majority of which will be affected by the reduction in Oklahoma. We cannot reduce ticket rates between Kansas and Oklahoma without reducing rates to and from Missouri, and, in turn, Illinois, Iowa, etc. Each state added to the list involves additional labor and complications.
>
> All interstate rates will be adjusted in turn, as soon as it is physically possible to do so. Mortal man can do no more. Our first obligation was to reduce rates locally in Oklahoma. Interstate rates between Missouri and Iowa were adjusted on a 2-cent basis July 19th. Interstate rates between Missouri, Iowa and Illinois were adjusted July 19th. Interstate rates between Kansas and Missouri, based on 2-cent rate in Missouri, were adjusted July 19th, east-bound, and July 28th, west-bound. Interstate rates between Kansas and Missouri, based on 2-cent rate in Kansas, were adjusted east and west-bound November 12th.

We believe that it is only fair to the railways that the press give space to Mr. Black's explanation, as the roads have been unjustly criticised in this matter; furthermore, the public is entitled to know the real status of affairs.

FOR RAILWAY LEGISLATION.

The members of the new Oklahoma legislature seem to have anti-railroad mania about as bad as members of some of the older states, and it appears to be the disposition of many of them to make a record on what they would tear down rather than what they should build up in a legislative way. It is fair to state that some of the proposed laws are within reason and even commendable, but many of them have the appearance of hostility which fact will redound to the disadvantage of the people at large. It may require the execution of some of the adverse laws to give the law makers and the public a proper realization of their disadvantages and follies, hence it is almost needless to offer advice or suggestions through the press.

As to legislative measures in behalf of railway employes in that state, the following propositions have been suggested to the governor for recommendation:

> Limiting service of telegraph, telephone operators and train dispatchers to eight hours a day and providing a heavy fine for violation.
>
> Providing for headlights on locomotives of such brilliancy as to enable the engineers to distinguish objects at least seventy rods ahead.
>
> Provision of separate coaches for the two races.
>
> To prevent blacklisting of railway employes.
>
> To compel railroads to employ competent engineers.
>
> To prevent the use of a locomotive so constructed as to cut off communication between engineers and firemen, with special reference to cab of engineer begin located on the middle of the boiler.
>
> To provide for convict labor on public roads.
>
> To provide for an eight hour day.
>
> To regulate charges for sleeping cars within the state, placing the limit at $1.50 for lower berths and $1.00 for upper berths.
>
> For inspector of maintenance, bridges and right of ways with proper assistants.
>
> Prohibiting the employment of telegraphers under eighteen years of age in railway work.
>
> Limiting day service of trainmen to not more than fourteen hours a day.

If it be true that there is a well known conspiracy among the millionaires to bring out Governor Hughes and thus to defeat Mr. Roosevelt's plans, we would inquire: What is the matter with Hughes? We fancy we hear an echo that "He's all right."

E. H. Harriman, if correctly reported in the press, does not anticipate any panic because of Wall street prices being comparatively low. When an eminent authority of Mr. Harriman's opportunity to forecast speaks so confidently as he has regarding the generally prosperous state of the country, the small political pessimist should take to the brush.

PERE MARQUETTE—C. H. & D. SEGREGATED.

On December 9th, the legal steps were taken to cancel the lease of the Pere Marquette to the Cincinnati, Hamilton & Dayton, and the reorganization of both systems.

The stockholders of the Pere Marquette voted on a plan to consolidate the Pere Marquette Railroad of Michigan and the Pere Marquette Railroad of Indiana; also to settle accounts and claims by Judson Harmon and W. W. Crapo, as arbitrators. Under the terms of the reorganization of the Pere Marquette there will be a $5,000,000 issue of five-year 6 per cent debentures to pay the company's floating debts and the receiver's certificates issued for taxes and other obligations. The total capital stock, which is $38,500,000, is not increased by the reorganization, the plan for which has been submitted to United States Circuit Judge Lurton, who presided in the receivership cause, and approved by him.

Following are the names of the first board of directors of the reorganized company, a temporary board, named in the articles of incorporation as required by the law: George W. Perkins, P. F. Shoemaker, George W. Young, W. T. Cross, E. H. Harriman, Charles Steele, F. D. Underwood, G. A. Richardson, George F. Baker, Norman B. Ream, I. G. McCullough, Walter B. Horn, Allen Wardwell and Thomas F. Joyce, all of New York, and Frederick W. Stevens of Detroit.

The first directors' meeting, at which officers will be elected for the new company, will be held at 23 Wall Street, New York, the day after the consolidation agreement is filed with the secretary of state of Michigan. On the first Tuesday in April, 1908, there will be a general stockholders' meeting for the election of a new board of directors.

General Solicitor F. W. Stevens at the conclusion of the meeting issued a statement in which he said that the money for the $5,000,000 issued of debentures comes from about fifteen hundred stockholders and not from any large financial institution, continuing:

"By arrangement among the stockholders those who contribute to the loan will receive a somewhat better class of stock than they now hold. The new first preferred stock will, after 1910, be entitled and limited to cumulate preferential dividends of 4 per cent per annum; provided, of course, the earnings of the company permit the payment of dividends. The new second preferred stock will on the like conditions be entitled and limited to non-cumulative and preferential dividends of 4 per cent per annum, subject to the prior payment of the first preferred stock dividends."

The officers elected by the new Pere Marquette directors are as follows: President, William Cotter; chairman of the board, George W. Perkins; general solicitor, Frederick B. Stevens; secretary and treasurer, J. E. Howard; assistant secretary, David Bozman; comptroller, J. L. Cramer.

AS TO THE C. H. & D.

The plans of the future of the Cincinnati, Hamilton & Dayton have not been given out in detail, but it is understood that road is to be operated as an independent system along the same policy as that used before the consolidation. The road under the reorganization, has chosen J. L. Cramer vice-president and comptroller, and J. E. Howard, secretary and treasurer, both of Cincinnati.

After making a fight for many years, the Texas Cattle Raisers' Association has succeeded in getting the Interstate Commerce Commission to rule against the switching charge of $2 per car on stock shipped to the Stock Yards at Chicago. The rate has been reduced to $1 per car, effective February 1, 1908. A few years ago the same question was up before the Commission, at which time it recommended that $1 per car was sufficient, but did not take an imperative stand on the matter, hence the switching rate was never reduced. The ruling of last month settles the question for the time being at least, unless an appeal is made by the Chicago Junction Railroad Company.

The above cattle association is now working hard in Washington for the passage of two special measures affecting railways. The first is one "requiring railroads to supply sufficient cars to enable stockmen to get their cattle to market," and the other is a reciprocal demurrage bill, which proposes to "make the railroads pay demurrage if they fail to furnish cars on the day agreed upon, or after due notice and demand." Other live stock associations have endorsed action relative to these two proposed measures.

The policy of encouraging and aiding railway employes to purchase stock in the roads for which they work is not a new one, but is commendable nevertheless. On the Great Northern arrangements have been made by the officers of that system by forming a corporation known as the Great Northern Employes Investment Company, Ltd., with which is deposited a block of Great Northern stock to be resold in small amounts to employes under certain conditions. This method affords employes an opportunity to purchase the stock at the market value without paying any commission to a broker. The number of shares allowed each employe free of commission is limited to one hundred. This aids the employe with a small surplus to secure valuable property without any extra expense.

Railway magazines are willing to publish matter not pro-railway and from any reputable source in the interest of fair discussion. The railways are not more important than the public, and men in other occupation can see with clearness the things in railway operation that may be wrong. Railway papers of to-day try most conscientiously to arrive at just conclusions and preach doctrines of fairness. In The World's Work and The Outlook have appeared in recent numbers articles of a character to encourage sane and reasonable consideration, one from a railway officer, the other from a New Jersey railway commissioner, and we have noted these particularly because such publications are so rare. In general the well-known magazines contain comments of an anti-railway type, apparently regardless of the enormous money investments that may be uselessly and permanently injured with no benefit to the public. There is much that is without proper defense in railway conduct of the past, but the path to methods carrying practical reform is not through the rhetorically polished theorizing of writers of no practical experience. It is easier to raze a building of beauty than to erect it.

The Cincinnati Traffic Club at Cincinnati has taken out a charter with the following men as incorporators: A. D. McLeod, N. M. Breeze, S. T. Billingsby, Geo. L. Williams, T. A. Healy, W. J. Byrth and T. G. Burnett.

FROM MY OBSERVATION CAR.

When it was announced that the Clover Leaf had secured control of the Chicago & Alton, there was lots of surmising as to who would be who in an official capacity. The changes have not all been brought about yet, no doubt, but conditions have adjusted themselves so far as to give pretty good satisfaction all round. The many freinds of C. A. King, general freight agent of the

C. A. KING.

C. & A., were pleased to learn of his promotion—that is his jurisdiction being extended over the Clover Leaf also. He is a popular traffic official of the West, and is well known in all the territory of the new combined system. It was only a few years ago that he "took the road" and started as traveling freight agent for the Chicago & Alton. The company soon discovered in him some able timber for higher duties, and his advancements have been gradual as well as merited.

Are the railway men of this country as provident as those of the older nations? The question was suggested by a statement made in the Great Western Railway Magazine, of the means used in England by railway men to provide funds for the widows and orphans. A recent issue of that interesting magazine, which is published in London, has the following story, which might suggest something to the railway men of this country:

Railway men, as a whole, are commendably provident. In this they are encouraged and greatly assisted by the directors of most of the companies of the kingdom. The Great Western Company have established several funds for the benefit of their employees and their families, the one probably best known to the traveling public being the Widows' and Orphans' Fund. This institution is mainly supported by regular contributions from the directors and staff, but a generous public also gives valuable assistance. With praiseworthy enthusiasm many railway men organize concerts, church parades, fetes, football matches, etc., devoting the proceeds to this fund, and at several stations familiar figures representing this institution are collecting dogs. The sum collected by the dogs amounts to between £200 and £300 per annum, and provides enough to meet the assistance given by the institution to about twenty-five widows out of about 1,500 who are dependent on the fund. Some of the dogs earn as much as £30 or £40 a year; others are not so successful. A great deal depends upon the characteristics of the animal, and much upon the way in which it is trained.

The most famous of the Great Western Railway collecting dogs was undoubtedly "Tim," of Paddington, which collected at that station for a number of years. He has been dead a few years now, but his preserved remains are to be seen in a glass case on the principal departure platform, where he continues to appeal to the public on behalf of the widows and orphans. In May, 1900, he was, by special command of the late Queen Victoria, honored by a presentation to Her Majesty at Paddington Station, and in February, 1901, he was similarly honored by a presentation to His Majesty King Edward VII. He has earned for the fund considerably over £1,000.

WANTS HIS TRUNK.

Railway agents sometimes receive very amusing letters which excite their risibilities and serve to "drive dull care away." The following was received by a member of the N. A. R. A. not long ago:

"Baggage Agent Thyer Mo,

DEAR SIR: Have you a Trunk thare that cum from Springfield Mo, and the Check to you Agent, for the Trunk I had the Yard Master at Springfield Mo, last Sunday Morning to check my trunk to Thyer for me I came in on No 208 to springfield and came on No. 205 to Thyer and I had the yard master to check this trunk to Thyer and I had of to had Him to checked this to Imboden you will remember me I bought Two Tickets from you senday Morning to Imboden. and if you have not got this trunk on hands I wish you would let this Agent hear from you are let me heare from you at wonts as this Trunk is very importent to me for it has some very importent things in it and the Trunk is a small one and it is red and tied with a small coard roap, and is not locked and if you have the check are the trunk I wish you would send it to Imboden send the check if you have the bag send it to Imb, let me have a word from you at wonts about this matter.

Yours Very Truly.
Yours Very Truly,
J. DAVIS.

THE FOREMAN'S FILOSOPHY.

Do not concern yourself about the unpleasant words others say to your back, as those things reflect their breeding and not yours.

A friend in need is worth more than a dozen of the other kind.

Do not mistake your troubles for everyday duties; the latter are the result of a mission.

Two things never do: forsake a friend or betray a trust.

Be broad enough to let others select their own friends, and expect the same privilege from them.

What you might call a calamity may be only a moral refining process.

If you feel that you should declare war on some one, try it on yourself first and see how quickly you will get on a peace footing with your fellow-men.

Do not attempt to build up today what you might wish to tear down tomorrow; build for eternity.

The foreman who deserves his position is one who realizes that he cannot make a record without the good work of those under him; they build for him.

The mechanic who tries to earn more than he gets is doing himself more good than he is his company, for he is building a character that money cannot buy.

If you are satisfied with yourself you will never have any trouble in counting your friends.

PERSONAL

EXECUTIVE, OPERATING AND PURCHASING.

T. P. Shonts, pres. of the Clover Leaf, has been made pres. of the Chicago & Alton also. **George H. Ross,** vice-pres. of the Clover Leaf, has been made vice-pres. also of the Chicago & Alton, offices at Chicago.

W. F. Bradley has resigned as supt. of the Ann Arbor.

B. B. Bain has been made fuel agt. of the K. C. S. at Kansas City.

Curtiss Millard has resigned as pres. of the P. & P. U. at Peoria, Ill.

E. C. Field has been made vice pres. of the C. I. & L., office at Chicago.

W. G. Fortune has resigned as trn. mstr. of the Southern at Asheville, N. C.

W. A. Bradford, pres. of the Wis. Cent., has removed his office to Chicago.

George A. Goodell has been made div. supt. of the N. Pac. at Livingston, Mont.

E. S. Moore has been made asst. supt. terms. of the Frisco at St. Louis.

W. J. Bartnett has resigned as vice-pres. and genl. atty. of the Western Pacific.

P. G. Williams has been made chf. trn. disp. of the J. I. & M. at Rockford, Ill.

T. B. Harrison has resigned as genl. atty. of the L. & N. to practice law in New York.

J. H. Fraser, supt. of the D. T. & I. has removed his headquarters to Toledo, Ohio.

W. E. Wheelock has been made supt. terms. of the Q. & C. at Chattanooga, Tenn.

C. F. Stevens has been appointed strkpr. of the Tonopah & Goldfield at Tonopah, Nev.

F. S. Rawlins has been appointed trn. mstr. of the Northern Pacific at Missoula, Mont.

Francis B. Clark has been made asst. pres. of the Seattle & Portland; office at Portland, Ore.

E. H. O'Neill has been made asst. genl. supt. of the Manistee & N. E. at Manistee, Mich.

J. B. Gallary has been made asst. div. supt. of the N. Y. N. H. & H. at Providence, R. I.

C. L. Eaton has been appointed asst. div. supt. of the Denver & Rio Grande at Alamosa, Colo.

John H. Kennedy has been appointed genl mgr. and aud. of the Durham & Charlotte at Gulf, N. C.

M. E. Tower has been made asst. to **E. L. Pollock,** vice-pres. of the Rock Island; office at Chicago.

J. L. Truden has been made div. supt. of the B. & A. at Springfield, Mass., vice **C. Firth,** transferred.

J. E. Kelly has been made supt. of the Orange & N. W. at Orange, Tex., vice **W. W. Yeatman,** resigned.

W. F. Goltra has been made tie agt. of the N. Y. Cent. lines west of Buffalo; office at Cleveland, Ohio.

H. V. Hilliker has been made supt. of the Union depot at Denver, Colo., vice **W. A. Whitney,** resigned.

J. M. Davis has been made acting genl. supt. of the O. S. L. at Salt Lake City, vice **E. Buckingham,** resigned.

F. R. Neat has been appointed dist. supt. of the Pullman Company at St. Paul, Minn., vice **C. C. Barclay,** resigned.

James Berlingett, genl. supt. of the St. Joseph & Grand Island, has been appointed genl. mgr. at St. Joseph, Mo.

W. H. Schmieding has been appointed supt. of car service of the Mexican International at the City of Mexico.

F. S. Forest has been made genl. supt. of the Portland & Seattle, and the Astoria & Columbia River, office at Portland, Ore.

D. C. Moon has been made genl. mgr. of the L. S. & M. S. and allied lines, vice **E. A. Handy,** deceased; office at Cleveland.

E. H. Coapman has been made dist. genl. mgr. of the Southern, vice **J. N. Seale,** deceased; office at Washington, D. C.

Robt. J. Dunham has been chosen pres. of the Union Stock Yards Co. at South Omaha, vice **C. F. Manderson,** resigned; **J. D. Creighton** is vice-pres., vice **S. McRoberts,** and **E. Buckingham** is made genl. mgr.

Charles O'Brien has been appointed supervisor of stores of the National Lines of Mexico, with headquarters at Mexico, Mex.

C. M. Bryant has been made act. trn. mstr. of the M. K. & T. at Denison, Tex., vice **J. E. Farrell,** assigned to other duties.

J. E. Farrell, who has been acting chf. disp. of the Missouri, Kansas & Texas, has been appointed trn. mstr. at Denison, Tex.

W. W. Abbott has been appointed trn. mstr. of the Lehigh Valley at Jersey City, N. J., in place of **G. W. Hardcastle,** resigned.

W. M. Coombs, trn. mstr. and **A. Campbell,** chf. disp. of the Frisco, have removed their offices from Lawton, to Oklahoma, O. T.

J. N. Haines has been appointed insp. of trans. of the Lehigh Valley at South Bethlehem, Pa., vice **G. B. Minshull,** promoted.

W. E. Scott has been made trn. mstr. of the L. Ry. & Nav. Co. at Shreveport, La., and **A. L. Day** is trn. mstr. at Baton Rouge, La.

E. C. Rendell, has been made supt. of transp. of the M. & O., office at Mobile, Ala. **M. C. Wise** is chf. clk. to the genl. mgr. at St. Louis.

H. A. McCullock has resigned as asst. genl. mgr. of the Pan-American Railway to accept service with the Guayaquil & Quito at Calloa, Peru.

J. W. Metcalf has been made div. supt. of the So. Pac. at Los Angeles, Cal., vice **T. McCaffery,** resigned to accept service with an electric road.

R. H. Johnson, supt. of terms. of the C. & N. W. at Chicago, has been appointed genl. mgr of the P. & P. U. at Peoria, Ill., vice **Curtiss Millard.**

J. W. Webb has been made pres. of the Beaver Valley & Northwestern, vice **J. Blanchard,** resigned; **J. F. Laughrin** is treas.; offices at Oklahoma, Okla.

J. J. Lewis has been made supt. terms. of the Mex. Cent. at Tampico, Mex., vice **R. N. Elliott,** transferred; **W. T. East** has been made trn. mstr. at Tampico.

C. L. Vaughn has been appointed purch. agt. of the Louisiana Railway & Navigation Company, with office at Shreveport, La., vice **W. E. Quinn,** resigned.

C. F. Bishop, road foreman of engines of the Pennsylvania Railroad at Oil City, Pa., has been appointed asst. trn. mstr. at Olean, N. Y., vice **J. D. Ferguson,** furloughed.

Jas. Osborne has been made div. supt. of the Can. Pac. at Montreal; **F. P. Brady** is div. supt. at Toronto, Ont.; and **C. Murphy** has been made genl. div. supt. at North Bay, Ont.

E. S. Wortham, purch. agt. of the Toledo, St. Louis & Western has moved his office from Toledo to 219 Railway Exchange building, Chicago, having been made purch. agt. also of the C. & A.

H. W. Clarke has been made vice-pres. and genl. mgr. of the I. & G. N., office at Palestine, Tex., vice **Leroy Trice,** resigned. **C. Hightower** has been made div. supt. at Mart, Tex., vice **C. J. Larimer.**

A. Cornelison, heretofore supt. of trans. of the Chicago Great Western, has been appointed genl. supt. with headquarters at St. Paul, Minn., succeeding **G. A. Goodell,** resigned, and the former office has been abolished; effective on December 11th.

The following appointments have been made in the legal department of the P. R. R.: Genl. coun., **George V. Massey;** asst. gen. coun., **Parker B. Prince, George Stuart Patterson** and **Henry S. Prentiss Nichols;** genl. solicitor, **Francis I. Gowen;** asst. genl. solicitors, **Stacy B. Lloyd** and **Henry Wolf Bickle.**

The following appointments are announced on the Southern: **A. H. Westfall,** genl. supt., northern district, Danville, Va.; **E. E. Norris,** div. supt., Atlanta, Ga.; **W. M. Deuel,** div. supt., Knoxville, Tenn.; **J. A. McDougal,** supt. terms., Atlanta; **F. W. Brown,** trn. mstr., Atlanta. **A. Ramseur** has resigned as div. supt.

J. M. Johnson, asst. to the vice-pres. of the Gould Lines, has been elected vice-pres. in charge of freight and passenger traffic of the Missouri Pacific lines, with headquarters at St. Louis. **E. B. Boyd,** heretofore mgr. of transp. of the Chicago Board of Trade, becomes asst. to the vice-pres. of the Gould Lines, with office at Chicago.

TRAFFIC AND ACCOUNTING.

Walter L. Ross has been made frt. trf. mgr. of the C. & A., office at Chicago.

J. K. Kennedy has been made agt. of the Pacific Express Company at Pittsburg.

Jas. A. Cleveland has been appointed frt. and pass. agt. of the Erie at Castile, N. Y.

Zack Mulhall has resigned as genl. live stock agt. of the Frisco, office at St. Louis.

W. W. Burnett has been made local frt. agt. of the Santa Fe at Lawrence, Kan.

S. J. Owens has been made asst. northern pass. agt. of the N. C. & St. L. at Chicago.

J. Deemer has been appointed pass. trf. mgr. of the Mexican Northern at Escalon, Mex.

W. F. Evans has been made genl. solicitor of the Frisco System, vice **L. F. Parker,** deceased.

F. W. Angier has been appointed trav. pass. agt. of the Southern Pacific at San Jose, Cal.

H. W. Waits has been made aud. of the Tampa & Jacksonville, office at Gainesville, Fla.

J. C. Havely has been chosen secty. of the Western Pacific vice **B. M. Bradford,** resigned.

C. A. King, genl. frt. agt. of the C. & A., has been made genl. frt. agt. also of the Clover Leaf.

J. T. West has been made trav. pass. agt. of the S. A. L. at Philadelphia, vice **J. J. Puller,** promoted.

E. H. Lowderbaugh, trav. agt. of the C. & N. W., has been transferred from Sioux City to Boone, Iowa.

R. A. Ripley has been appointed com. agt. of the Georgia Railroad at Cincinnati, vice **A. R. Morgan,** resigned.

H. J. Booth has been made coal and coke agent of the Wabash lines east of Toledo, office at Pittsburg.

E. M. Dillon has been made aud. and car acctnt. of the Tehauntepec National, office at Rincon, Antonio, Mex.

Karl E. Hurlburt has been made trav. frt. agt. of the Piedmont Air Line at New York, vice **C. S. Metzer,** promoted.

George Charlton, genl. pass. agt. of the C. & A. has been made genl. pass. agt. also of the Clover Leaf, office at Chicago.

Gabe Fillieul has been made genl. agt. of the National Lines of Mexico at New Orleans, La., vice **H. W. Nathan,** resigned.

Claude C. Kilbury has been appointed dist. pass. agt. of the Hocking Valley at Toledo, Ohio, vice **E. R. Davidson,** deceased.

R. W. Owen has been made genl. agt. of the Wabash at Denver, vice **P. P. Hitchcock** resigned to engage in private business.

Charles Firth has been appointed agt. of the B. & A. at Worcester, Mass., vice **S. S. Van Etten,** transferred to Pittsfield, Mass.

John Lever has been made genl. frt. and pass. agt. of the Wyoming & Northwestern at Casper, Wyo., vice **C. W. Cook,** resigned.

H. T. Harlow has been made trav. pass. agt. of the Erie at Kansas City. **G. D. Hughes** has been made city tckt. agt. at Youngstown, Ohio.

H. S. Jones has been made div. frt. agt. of the C. B. & Q. at Sioux City, Iowa. **E. F. Bisbee** has resigned as genl. agt. at Kansas City, Mo.

C. F. Osborn has been made agt. of the Erie Despatch at Denver, vice **H. P. Potter,** transferred to Omaha, vice **B. J. Drummond,** resigned.

M. J. Costello, gen. industrial agt. of the Great Northern, has been appointed asst. trf. mgr. at Seattle, Wash., vice **H. M. Adams,** resigned.

R. E. Tipton has been appointed trav. frt. and pass. agt. of the Mexican-American Steamship Co. at New Orleans, vice **O. E. Duggan,** transferred.

R. E. Lee, chf. clk. in the genl. pass. dept. of the International & Great Northern, has been appointed asst. gen. pass. agt. at Palestine, Tex.

H. A. Graber has been made genl. agt. of the Kan. City Southern at St. Louis, vice **C. H. Ivers,** and **D. S. Roberts** has been made genl. agt. at Pittsburg, Pa.

J. H. MacFarlane has been made vice-pres. and genl. mgr. of the Mexican-American Steamship Company, vice **A. L. Robey,** deceased, office at New Orleans.

W. A. Matlock has resigned as trf. mgr. of the Colorado Springs & Cripple Creek and the Florence & Cripple Creek, to accept service with a land company at Canyon City, Colo.

George D. Hunter, asst. genl. pass. and tckt. agt. of the International & Great Northern, has been appointed genl. eastern frt. and pass. agt. at New York, vice **W. T. Musick,** resigned.

B. H. Payne has been made genl. pass. and tckt. agt. of the Mo. Pac., vice **H. C. Townsend,** resigned; office at St. Louis. **W. H. Bissland** has been made asst. genl. pass. and tckt. agt.

Jas. Robinson, div. frt. agt. of the Great Northern, has been transferred from Grand Forks, N. D., to St. Paul, Minn. vice **G. J. Ryan,** promoted; **Jas. H. Griffin** is div. frt. agt. at Grand Forks.

C. F. Miley has been made genl. agt. of the C. & N. W. at Des Moines, Iowa, vice **L. F. Berry,** transferred. **J. E. Brittain** is made genl. agt. at Boston, Mass., vice **C. H. Wise,** assigned to other duties.

P. N. B. Hampton has been made city pass. agt. of the S. A. L. at Atlanta, Ga., vice **D. W. Morrah,** made trav. pass. agt. at that point. **J. J. Orrison** has been made trav. frt. agt. at Birmingham, Ala., vice **W. A. Fulwiler,** transferred to Montgomery, Ala.

The following appointments are announced on the Mo. Pac. Iron Mountain: **E. B. Lane,** genl. frt. agt., St. Louis, **F. L. Huesman,** coml. agt., Ft. Scott, Kan.; **T. A. Helm,** coml. agt., San Antonio, Tex., vice **S. W. Bradford,** made genl. agt. at Dallas, Tex.; **H. B. Gregory,** trav. frt. agt., Louisville, Ky.; **F. J. Kemper,** trav. frt. agt., Pueblo, Colo.

J. B. Erwin, Jr., has been appointed coml. agt. of the Southern at Mobile, Ala., vice **C. L. Bunting,** transferred to Macon, Ga., vice **J. O. Moore,** resigned. **Morgan Richards** becomes soliciting agt. at Selma, Ala. **Clarence Russell** has been appointed trav. frt. agt. at Lexington, Ky. **J. T. Rigler** has been appointed coml. agt. at Charlotte, N. C., vice **H. S. Du Val,** promoted.

D. Bowes, asst. genl. pass. agt. of the C. & A. at St. Louis, is given like authority over the Clover Leaf at that point also; **R. J. McKay** is made asst. genl. pass. agt. of both lines at Chicago; **T. J. Burns** is made genl. agt. of both lines at Kansas City; **G. E. Beekman** is made genl. eastern pass. agt. of both lines at Boston; **C. R. Davidson** becomes asst. genl. pass. agt. of both at Chicago; **E. E. Brownel** has been made dist. pass. agt. of the Clover Leaf at Toledo, Ohio.

Owing to the consolidation of local traffic offices of the Rock Island-Frisco, the following appointments are announced: **J. A. Stewart,** asst genl. pass. agt., at Kansas City; **J. C. Lovrein,** genl. trav. pass. agt. at Chicago; **Hal S. Ray** in charge of advertising at Chicago, formerly asst. genl. pass. agt. at St. Louis; **J. A. Stroud** and **W. C. Melville,** trav. pass. agts. at Kansas City; **F. E. Clark,** div. pass. agt. at Wichita, Kan.; **Roy Baker,** trav. pass. agt. at Wichita; **H. C. Conley,** div. frt. agt. at Oklahoma City; **E. B. Hooser,** div. frt. agt. at Wichita; **J. E. Bell,** trav. frt. agt. at Wichita; **Fred C. Smith,** coml. agt. at Kansas City; **A. E. Stephens,** claim agt. at Chicago; **T. H. Wilhelm,** coml. agt. at Dallas, Tex.; **R. O. McCormick,** coml. agt. at San Antonio, Tex.; **C. E. Wynne, Jr.,** coml. agt. at Ft. Worth, Tex.; **C. D. Golding,** coml. agt. at Houston, Tex.; **E. M. Gleason** and **S. S. Butler,** trav. frt. agts. at Dallas; **W. H. Weeks,** live stock agt., Ft. Worth, Tex.; **J. H. Doughty,** coml. agt. at Memphis, Tenn.; **A. D. Murray,** genl. agt. frt. dept., St. Louis; **E. J. O'Neill,** cont. agt. at St. Louis; **T. O. Jennings,** coml. agt. at Chicago; **C. B. Albright** becomes asst. genl. frt. agt. of the Rock Island at Kansas City, and **H. H. Embry,** genl. frt. agt. of the Rock Island, has his authority extended over the St. Louis-Kansas City line.

ROADWAY AND ENGINEERING.

A. L. Hertzberg, eng. of maint. of way of the Canadian Pacific, has been appointed divisional eng. at Toronto, Ont.

E. L. Watson has been appointed supervisor of signals of the Pennsylvania Railroad, vice **W. M. Schnure,** transferred.

T. A. Cowry has resigned as supt. of maint. of way of the Mexican Railway to accept service with a Peruvian company.

S. P. Hull, eng. of signals of the New York Central, has been appointed eng. of maint. of signals, with office at New York.

Carl C. Witt has been appointed eng. in charge of railway appraisals for the railroad commission of the State of South Dakota.

Wayne A. Clark, asst. eng. of the Duluth & Iron Range, has been appointed chf. eng. at Duluth, Minn., vice **Robert Angst,** deceased.

MECHANICAL.

Harry Cox has been made mstr. smith of the Frisco at Sherman, Tex.

J. D. O'Connor has been made car fore. of the Mexican Central at Torreon, Mex.

C. J. Morrison has been made standardizing engineer of the Santa Fe, office at Topeka, Kan.

R. L. Doolittle has been appointed M. M. of the Atlanta, Birmingham & Atlantic at Fitzgerald, Ga.

N. L. Smith has been appointed M. M. of the Texas Midland Railroad to succeed **O. W. Lewis,** resigned.

D. D. Briggs, asst. M. M. of the L. & N. at Montgomery, has been appointed M. M. at Mobile, Ala., vice **C. B. Gifford,** resigned.

G. W. Sheasley has been appointed mstr. carp. of the Pennsylvania Railroad, at Ormsby, Pa., vice **Robert McKibben,** transferred.

W. H. Williams has been made M. M. of the B. R. & P. at E. Salamanca, N. Y., and **J. L. Kendrick** has been made genl. fore. at Punxsutawney, Pa.

J. A. Doarnberger, mstr. boiler mkr. of the N. & W. at Roanoke, Va., has been made mstr. boiler mkr. of the entire system, office at Roanoke; effective December 16th.

O. M. Foster has been made M. M. of the Lake Shore shops at Elkhart, Ind., vice **M. J. McCarthy,** made M. M. at the Beech Grove shops. **J. T. Carroll** has been made asst. M. M. at Elkhart; **O. M. Berry** becomes supt. shops at Elkhart, vice **A. R. Ayes,** made shop supt. at Collinwood, Ohio.

OBITUARY.

C. E. Lambert, formerly genl. pass. agt. of the West Shore, died December 10th.

W. A. Bliss, pres. of the B. & A., died at Boston, on December 14th, aged 73 years.

W. H. Fletcher, rd. mstr. of the N. P. at Jamestown, N. D., died on December 11th.

J. J. Ferry, div. pass. agt. of the Nor. Pac. at Cincinnati, died in that city on December 3rd.

L. F. Parker, genl. solicitor of the Frisco System, was found dead in his home at St. Louis on December 16th.

William Crooks, asst. to the genl. mgr. of the Harriman lines at Portland, Ore., died in that city on December 17th, aged 76 years.

ALONZO WYGANT'S DEATH.

Alonzo Wygant, general superintendent of the United States Express Company, after a four months' illness died at his residence, 5637 Madison avenue, Chicago, at 6 o'clock the morning of December 23rd. In the passing away of Mr. Wygant Chicago loses one of her best citizens in the noblest sense of that term. In every form of civic virtue he was the peer of any man, and in local patriotism there was no more sincere well-wisher, with his shoulder always to the wheel of public progress. In his official capacity he was without any superior for the careful meting out of justice to every interest influenced thereby. The company he presided over here, and the public served by it, can only hope his successor may follow in his footsteps. He was so thoroughly acquainted with his line of duty, that he was widely known for his ability, and universally loved and respected. In his home he was a prince among friends. In this charmed circle where with his wife and daughter he found all he loved best, his sincere and simple cordiality was shown with all the strength of a generous heart, and tempered almost by a woman's gentleness and courtesy. Men in all branches of commercial life and those in all departments of his company's service, met with his wife and daughter to mingle tears upon his bier.

The Southern and Union Pacific railways together require 4,250,000 ties per annum for present main line renewals. The extensions of the sidings and yards to meet increasing traffic must largely and quickly augment this total. It is these considerations and others of equal moment that compel our earnest appeals for forest protection. This subject is live and vital in its relations to the future.

CARELESS CRITICISM OF ROOSEVELT OF GREAT HARM TO RAILWAY INTERESTS.

Fear, Hate and Prejudice deprive a person of the power of arriving at correct conclusions—*Roycroft Reminder.*

The opinions of leading men recently given the RAILWAY JOURNAL are averse to the caustic attacks made upon the President. Such criticism is likely to have a retroactive effect, in more enthusiastic endorsement by the people of policies which the public generally approves. It is especially unfortunate now when the President is frankly in favor of Federal incorporation and proper amendment of the Sherman law, to meet his action with contention about other things. If there is anything at present desirable for railway interests it emphatically is *uniformity* in regulation. Many laws of many states are the product of "many men of many minds," and the only hope of sane conditions for the carriers is in the National government. Why then carp at the most likely power for bringing this about? Present railway associations are only existent by tacit understanding, or their being for the time legally forgotten, and they are quite anxiously awaiting a legal status.

A decree for separation has been issued, but held in abeyance hoping for later compromise. The chief executive has specifically requested laws for relieving this situation, and yet while the railways want uniform regulation and power to form proper combinations, some of our railway chiefs are unwilling to support measures of a reciprocal nature, so far as the people are to be affected.

In the captious denouncement of Mr. Roosevelt it is not easy to count many men leaders of the public, and in many instances his detractors are completely out of touch with general opinion. The unwillingness to concede supervision of accounts, or any regulation of securities whatever, by those who only know railways within the confines of the New York Stock Exchange, and their frequent diatribes against the administration, have been among the primiary causes for our recent financial illness.

The President is not always right, no man is, and in his public statements has at times passed the limit of discretion no doubt, leaving opportunity for a construction far beyond his intent. It has been a misfortune if those who read let inference carry them to the brink of economic chaos, but more their own hysteria than any calm reflection. When this result has pervaded official circles possibly some representative has let his enthusiasm for reform assume the shape of an unwise radicalism, but these cases are exceptions, not the general result. Such effects seem to us now and then apparent, yet we, nevertheless, regard it as a truth that the enemies of the President, by the most unwise publicity of their estimate of his purposes, and the most exaggerated construction of his statements, have brought about the greatest harm both at home and abroad. He has been at least honest and sincere, while those who have recklessly fought him have advanced reasons often speculative, and manifestly selfish in effect. It is time to note what he proposes for railway improvement and to give him full credit and the support his measures deserve, particularly that for national incorporation, the most likely panacea for conflicts as between states and the Federal government. It is well to forget what you cannot get if *you can really get what you need.*

W. B. B.

WILLIAM COTTER.

William Cotter, the new president of the Pere Marquette Railway, was only a few years since a trainmaster serving the Wabash Road at Litchfield, Ill. He went from the Wabash to the Grand Trunk Railway with C. M. Hayes, and in a wider field of opportunity his ability became readily apparent. Later, after being regularly advanced in position on the Canadian line, he took service with the Missouri Pacific Railway Company under Russell Harding, and accompanied Mr. Harding when he went to the Pere Marquette Company. When the latter officer left the railway employ Mr. Cotter remained, and has been a very important factor in assisting the receiver to restore this valuable property to a solvent state, where it rightfully belongs. In his newer affiliations resulting from the Pere Marquette rehabilitation the president will find himself surrounded by interests that are builders and not in the "wrecking crew" and his future looks toward the largest form of development, which we are sure he will realize.

DELIVER THE GOODS.

In any calling or occupation the man who can "deliver the goods" is a success. He is marked by a peculiar appreciation and confidence that the public bestows upon the individual who can accomplish what he promises. It is entirely unnecessary to worry about his employment or compensation, once the fact is known that he can "make good." The engineer who can make the schedule time with his trains under most conditions is a marked man, but it is not a long, black mark. The agent who has the fewest corrections from all departments receiving his reports, who is polite to the patrons of his road, and keeps his waiting-room and office neat and clean is known to every officer of a railway he does business with. The operator who is always ready to take his "shift" and answer his call promptly is known to everyone who uses the wire. The superintendent of a manufacturing concern who can turn out orders when required, the clerk who sends them to the shipping point without error or delay, and the employes of a railway transporting them in the shortest time to destination, are all soon established in public confidence, as in the class which delivers the goods. In every profession (if we may apply the motto to professional life) the men who are well known to everybody and whom all want to assist are those who accomplish what they may attempt and make a prompt and efficient showing of results.

There is another side to all this success, however, and it is this: Do we properly scrutinize and look into methods? Is justice and honesty between men so weighed in our hurry and rush that, regarding fairly differing capacity, each has opportunity according to his merits?

These are times when the air is full of introspection, much to the benefit of mankind, and this thought comes uppermost: Are we willing in this strenuous age to live less stormily, and let the other fellow deliver part of the goods? Are those, having made good themselves to the full extent of all requirements as to income and reputation, equal to giving competence elsewhere opportunity? It is the most insidious form of egotism to feel that no one can replace you or do your work, and Time's mutations show this, so why not help some other fellow to "deliver the goods" while in the zenith of your power? The example once set of helping the unfortunate but capable man to "make good" is to temper the strenuous life of today with a well merited philanthropy that will make sunshine tomorrow.

C. S. FUNK AT KENOSHA.

Below we publish from the Chicago Tribune of Wednesday, December 11th, a report of the address of C. S. Funk, general manager of the International Harvester Company. Mr. Funk spoke to the Men's League of Kenosha, and a careful perusal of his remarks will call for confidence in him and the corporation he speaks for. His address is as follows:

"The American people are fair minded," and believe absolutely in President Roosevelt's 'square deal,' and would be quick to resent any charge of unfairness in passing judgment on information supplied by only one side.

MENANCE IN DEFIANCE OF LAW.

"Serious charges have been made and repeated with increasing vehemence. That there are and have been gross abuses in corporate affairs there can be no question, and there can be no greater menace to our country than a greedy, defiant thing created by law, brutally indifferent to the welfare of the public, which cannot be hanged or jailed, and with nobody to be kicked and no soul to be damned.

"It fears neither God, man or the devil, but it is unfair for the people to assume that all great corporations are bad. No honest, right-minded corporation man can object to corporate regulation, and the regulation can only be made effective under the power of the National government

PATCHWORK LAWS NO SOLUTION.

"It is useless for the different states to think that by passing scores of patchwork laws, many of them conflicting in their nature, and which, taken in the aggregate, could never be obeyed by any corporation doing business everywhere, they can furnish a solution to this question. The only effect of such efforts would be to penalize and harass corporations which would like to obey. These things will happen so long as the state officials are either venal or ambitious for political preferment.

"The attorney-general who wants to be governor or the governor who wants to be United States senator, and after that President, can always attract attention by taking the warpath against trusts in the present state of public opinion."

Bills before the Georgia legislature providing for the extension of the Western & Atlantic from Atlanta to the coast, have been favorably passed. The W. & A. belongs to the state of Georgia and is operated under lease by the N. C & St. L.

The Virginian Railway now operates trains into Norfolk, Va. The two sections between Jarratt, Va., and Victoria, 46 miles, and between Matoka and Mullens, W. Va., 121 miles, have been completed. This line is the consolidation of the Tidewater and the Deepwater roads.

The Belen cut-off of the Santa Fe, between Rio Puerco, N. M., and Texico, Tex., 268 miles, has been completed, but is not used for regular through traffic yet. This cut-off saves only 11 miles of track over the La Junta-Trinidad route, but is a great saving in grades, particularly the ones at Raton Pass and at Gloretta.

The concessionaires for the construction of railways in Argentina (Lavnas, Pali & Cia and Emilio A. Carrasco, both of Buenos Aires) request short term tenders in regard to such construction. Argentine government harbor works, estimate, $9,000,000 (approximately), steamers for Rio Negro; particulars of Eugenio Varelo, Buenos Aires. Bids on 4,000 tons of Portland cement are requested by the Direccion-General de Vias de Communicacion, Buenos Aires.

PRESIDENT—W. H. MILLS, (L. S. & M. S. Ry.) ..... Norwalk, Ohio
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Official Organ, RAILWAY JOURNAL, Chicago, Ill.

NOTICE—N. A. R. A. MEMBERS.

At the meeting held in Chicago the 21st, all of the arrangements for the trip so far as the movement of the train and dates is concerned were completed, the other details, in the way of entertainment, etc., will be arranged for in a short time and the itinerary sent out as soon as it can be gotten in shape for distribution. From present indications there is going to be a good turn out and the members who contemplate going on the trip should make their applications for space as early as possible. All applications should be in the president's office at least ten days before the special train leaves. The cost for the entire trip, including meals and berths, also the trip from Williams to the Grand Canyon, will not exceed $52. As the line from Williams to Grand Canyon does not issue passes they have made us a half rate, which amount is included in the $52. Applications for space must be accompanied by the necessary amount to cover the space asked for. Applications for transportation should be made through the president's office by those who cannot secure such transportation themselves.

W. H. MILLS, President.

THE N. A. R. A. CONVENTION AT LOS ANGELES, CAL.

One month and a few days only are to pass away between now and the time appointed for members of the National Association of Railway Agents to assemble at Chicago, and start from there by the Santa Fe Route to their eleventh annual convention, to be held in February next at Los Angeles, Cal. It therefore becomes necessary to use in part the N. A. R. A. pages of the January number of the RAILWAY JOURNAL, the official organ of the association, to get before all its members in time and in as complete form as possible the many attractive features of the trip and incident thereto, perhaps a fairly distinct showing of what it and the occasion has in store for them. All this, too, to the end that no one member of the N. A. R. A. may carelessly, indifferently or unappreciatively neglect to avail himself and the members of his family of the pleasures and benefits thus at hand, but take advantage of them, share them with wife and children, if it may be, and individually better equip himself for the duties of his vocation and the furtherance of his own and his company's interests.

The sundry convention meetings and the many joyous travels in connection therewith, which the members of our organization have enjoyed in years past, by favor, as it may be said, of our employers—those we work for—the many different railways of the country form, as it were, a large volume of history, narrative of the pleasures experienced, benefits realized and knowledge gained by members of the order, and the missing of any one of said meetings and excursions in the years gone by by a member of the association has declared a lost chapter in that volume to him. Thereby his topographical knowledge of the great country he lives in, and which knowledge is so useful to him in his business calling, is now to that extent nil. His equipment for social converse and the entertainment of friends has been that much limited. His reputation as a man of general information and intelligence lacks that much of sustenance and the pleasurable experiences of his life have been that much shortened. Let no member of the N. A. R. A. miss the coming trip.

As was outlined in the December RAILWAY JOURNAL, the special train carrying members of the association and their families to the convention will start from the Dearborn Street Station, Chicago, Saturday, February 8th, at 5:30 p. m. and run thence over the Santa Fe Railway, stopping in the order named, at Grand Avenue Station, Kansas City, Mo., for those of the party who may wish to catch the train there; Santa Fe, Albuquerque and Laguna, N. M., Grand Canyon, Ariz., San Bernardino, Redlands and Riverside, Cal., reaching Los Angeles about 4 o'clock the evening of the 14th. Five days will be spent at Los Angeles, and Wednesday evening, the 19th, the association will be taken charge of by the Southern Pacific Company for the return home ride by way of New Orleans. On the route to New Orleans stops of considerable length will be made at El Paso, San Antonio and Houston, Tex., the train reaching New Orleans Monday, the 24th. One day will be passed at this noted metropolis of the South, under the chaperonage of J. W. Cousins, second vice-president of the N. A. R. A. Tuesday p. m., February 25th, at New Orleans the party will become the guests of the Illinois Central Railway Company for transportation to Chicago, with a stop of some hours en route at Memphis, Tenn. This is the naked itinerary of the trip. What else?

This is the first year in the life of the N. A. R. A. that it has had an official organ, and resultantly, a fair opportunity to advertise its annual excursions and exploit their attractions in advance of their actual realization and accomplishment. Therefore, before attempting an answer to the query, What else? it is thought well to remark that whatever further may be said herein laudatory, or in happy vein, of this exciting journey to California, will be altogether void of intent on the part of the author to contrast it with the other delightful trips of the association made in former years. Under like circumstances, then, it would be difficult now to estimate the many happy things which might also have been said and pictured fully beforehand in praise of them. Suffice it to say that those past excursions have the N. A. R. A.'s highest favor and sweetest remembrances. They fulfilled the hopes and expectations of all members of the association that participated in them, and satisfied within their hearts every kindred desire. All have been equally valuable and beneficial to our organization individually and as a whole. No member of our society would wish any one of them erased from his memory. They were donated to the association by one and the same generous spirit on the part of all the

railways. They form a harmonious whole, are marred by no complaint or sorrow; they all shine alike as stars in our association's crown of rejoicing and invoke its deepest gratitude.

There are, however, associated with a trip to California, features that are new in character, fresh in

CATALINA ISLAND.

interest and joyous in contemplation from all others and which cause it to be looked forward to by everyone going there with the fondest hopes and most glorious expectations.

Visitors to that earthly paradise usually flow from the north and east and those sections of country that are unconformable and strange to its beauties and attractions, but they read of its sunny clime, which has denominated it the Italy of America, where spring, summer and winter are ever commingling, where the frost king is unknown, where flowers forever bloom, and where, when winter storms and blizzards are sweeping the northern and eastern states, fruits glow in golden splendor, and millions of blossoms garland every nook and dell. They have read, too, or perchance been told by others who have returned from there of its mountain scenery and ocean views, of its beautiful lakes and parks,

WINTER SCENE AT LONG BEACH.

of its groves and gardens sprinkled with palaces and delightful homes, of its orange orchards and splendid lake and ocean pleasure resorts, and they long to look on this land of fruit and flowers, to bask in its sunshine, gaze at its mountain peaks, catch glimpses of the ocean, breathe the fragrance of its roses and geraniums, and listen to the songs of the nightingale and mocking bird. They go, they come, and like the Queen of Sheba after her visit to Solomon, with wonderment still lingering in their countenances, exclaim—the half had not been told them. Our convention city lies in the very heart of this Wonderland. The distance to Los Angeles covers many miles of territory, and seems a long way to travel. So it was from Egypt to the Promised Land, but it is so provided that the states west of the Mississippi, through which we pass to the borders of California, have so many grand views en route, and other things of absorbing interest to see, that there is no tedium to the journey, and the trip will be a sightseeing carnival almost from one end to the other.

The one and only place of importance on the way after leaving Chicago that we shall speak of minutely herein, is the Grand Canyon of the Colorado River. A view of this one phenomenon of nature, alone is worth the care and expense of the whole journey. It is, perhaps, unexcelled in grandeur and magnificence by any other scenic view in America, or in the world. A competent observer thus describes it: "It is different from anything else in the way of world wonders. The Yellowstone, Yosemite, Niagara Falls and the like, convey to you no idea of its immensity and its weirdness. All these thrown into its awful chasm would be but

PUEBLO OF LAGUNA FROM SANTA FE TRAIN.

atoms, as it were, in its stupendous gorge. Think of all the great buildings you have ever seen, read or dreamed of, ancient or modern, the most wonderful of man's creative genius, and the architecture of this Grand Canyon excels them all as the Capitol at Washington excels the Bungalows of Santa Barbara. It is a gorge 217 miles in length, and thousands if you follow its conformations, 14 miles in width, from rim to rim, and 1¼ mile deep. That is to say, that it is between six and seven thousand feet deep from top to bottom where the river flows, but can scarcely be seen, although it is between two and three hundred feet wide. Flowers bloom and everlasting spring rules at the bottom, while grim winter reigns at the top. The interior of the Canyon as seen from the different special view points is a succession of architectural wonders. Great buildings with pinnacles and towers, domes and ballustrades, bastions, arches and columns, and lattice-work of delicate carvings. And then the coloring! the titanic painting in varied hues, and the shadings in pink, red, brown, lavender, gray, blue and black. In some lights saffron prevails, in others vermillion, and yet in others the grays and blacks predominate. At times the clouds form in the canyon below and wander among its side gorges and irregular formations, and float higher and higher until dissipated in the upper air, then, as the

(*Continued on page* 26)

MECHANICAL

NOTICE.—Communications are requested for publication relating to locomotive and car designs and equipment; also to special tools to facilitate shop work, or any subject tending to promote the efficiency of the Mechanical Department of railways. All practical men are earnestly requested to contribute early notices of official changes and additions of new equipment for the road and shop, both by purchase and construction.

Description of novel and meritorious devices recently designed that are of general interest will be published in our reading columns free of charge.

All communications relating to this department must be addressed to the Mechanical Editor, Railway Journal, 66 Sherman Street, Chicago, Ill.

THE IDEAL FOREMAN.

The following extracts are from a paper read recently before the Cincinnati Metal Trades Association by Wm. Lodge:

"This title is not chosen by myself—The Ideal Foreman. The title is enough to make anyone smile, because I doubt if any of us ever saw him, and I think further if all the men in this room were to know that this ideal foreman could be had, there would be a much bigger scramble to get him than if a shower of gold had been thrown amongst us. Seriously speaking, it is difficult to find the ideal, just as difficult as to find the pot of gold that is supposed to be at the end of the rainbow. Nevertheless there are qualities existing amongst the foremen that we all have in our employment, that go to make a part of the ideal character for which we are striving. The conditions in this country make it clear to the mind of any thinking man that the ideal foreman does not remain in the employment of anybody, but would be operating for himself; therefore, as he is absent and unobtainable, let us discuss the possibilities of using such men as are obtainable to the best advantage. There are many mistakes made by owners of shops requiring so much service from a foreman—that properly done—would take at least two to ten men to perform, and when this mistake is made, the output of that shop not only suffers in quality, but also in quantity. Suppose a foreman is employed and expected to handle one hundred men. The nature of the product being diversified, every one of these hundred men must not only be instructed separately and individually as to what the work they are doing must be, and test them out to be sure that they know how to read a drawing, but each one must be seen individually and continuously every hour in the day, so that it will be known by the man in charge as to whether each particular man is giving back a sufficient amount of service for the money that he is paid. The employer under these circumstances, having in mind economy, thinks that a foreman should be able to handle the whole situation, and requires him to do so. The foreman accepts the position under these conditions and simply does the best he can, but in many cases he is spread over entirely too thinly, and it is utterly impossible for him to keep thorough track of not only the work, but the method of doing it; the quality as it leaves his hands, and the quantity furnished. A foreman in addition to this must be fully posted on all orders, and if they are much diversified, this of itself is sufficient employment for a good man, yet is being called upon either to give out work, or to see each and every man as to the method of doing it, and as to whether he is doing a sufficient amount of it. All that would be necessary to convince you of this would be to look over your own daily routine of work and it appears at times to be overwhelming, and yet it forms but a small part of the whole work required about a reasonably large establishment. Any one of us who has a man to whom we could leave the entire management, and who can not only show results that are entirely satisfactory, but can keep his temper, and keep his men all in a good humor, is to be congratulated. A very large per cent of loss is often due to the unfortunate temper of a foreman. If he gets angry because a man asks him questions, the man will approach him as seldom as possible. If he is impatient because the workman's understanding is a little dull, and he does not comprehend his instructions quickly enough to suit the foreman, and the foreman leaves him in this condition, the man must grope his way along in discouragement, or endeavor to get the information he needs from some good-natured workman in his immediate vicinity, and the product again suffers. The man with a nice obliging disposition is far better adapted to become the ideal foreman than the one with a cranky disposition. Again, in my own experience, I have found that while a foreman was quite efficient in getting the work up to the men, and making them understand pretty well just what was to be done, he was utterly lame in so far that he would pass by both men and machines without paying attention as to whether the man was turning out two hours' work per day, or ten hours' work. Now, this man was a perfectly efficient man in every other particular, and the proper and the only thing to do in this case was to fill the gap in his make-up by supplying what was lacking, which consisted in this case of the very methods described; namely, by employing a man to look after the grinding of the tools, the feeds, the speeds and the output. Again, should *this* man turn out to be unable to handle men by reason of his not having the proper disposition, serious damage may be done, or perhaps I had better say the results obtainable would not be obtained.

"The results obtainable in a shop are always much greater if one set of men can be kept employed and become accustomed to the work and the foreman, and the means and general conditions under which it is run, as each and every man becomes familiar not only with the shop routine, but knows exactly where to go for anything that is wanted, and having passed through an experience on one piece of work, he would naturally do the next piece quicker, and the next piece still quicker, etc. It is therefore seen that an impatient or bad-tempered foreman, who is continually changing workmen, is hurting the output, consequently the pocketbooks of the employer to such an extent that would be alarming to said employer if he knew it. How frequently have we found in our experience two shops engaged in the same line of business, in the same town, having about the same amount of capital employed, selling their goods in the same market, where one would be making three to four times the profit made by the other one, and yet the workmen are passing from one shop to the other frequently. It is very clear that this state of affairs then is not brought about by the men—I am alluding now to the difference in the earnings of the two companies—but by the management of the foreman.

Many foreman are inclined to take life easy. They accomplish some little thing that effects quite a saving, and immediately become inflated to such a degree that they believe the proper thing to do is to sit down and rest on their laurels, losing sight of the fact that they are employed, and their salaries are paid for doing just that very thing not once in six months, but once every day, if possible, and if the opportunities are there and it could be done, then once every hour. Great results are never obtained except by hard work, and particularly by continuous work. Having obtained good results on one item, it must be borne in mind that this one item cannot affect the whole product, or the entire building of a machine.

"It is exceedingly discouraging to the foreman or superintendent, who, having gotten to the point where he feels somewhat inflated, if he is sat down upon by the owners, making his efforts utterly void Anyone will readily see how quickly such a man would become discouraged, and the same thing holds good from the superintendent down to the poorest workman in the shop. Should a lathe hand, or a vise hand, point out to the foreman a new or a better method of doing the work, or a method that would save money, and his suggestions are received very coldly and no attention paid to them, that hurts his usefulness in this direction. A good foreman will at all times particularly encourage the men who make suggestions, speaking to them in a very pleasant manner, and assuring them that he will call the attention of the higher authorities to his suggestion, which will not only encourage him to make others and better ones, but discovers to the employer the fact that he has got a man in his employment who thinks, and when he is lacking for some one to fill a better position, he knows where to put his hands on him. It is highly important that all employers, if possible, follow such matters, and if the nature of their business will not permit this, then if they can encourage the superintendent in such a way as to make him feel perfectly easy that no harm will come to him by reason of his having pointed out the improvement made by any one of the workmen, good results will be bound to follow. Suppose even a casting cleaner, whose business it is to rub and chip castings, discovers a means by which he could do two or three times the amount? He should be not only encouraged, but if the circumstances will permit, some monetary reward given to him, and certainly the foreman should tell him that his suggestion is good, and that if he makes many more, it will be necessary to advance his pay, and possibly advance him in his work. Of course, there are always places where such men can be made more useful than in the cleaning of castings, The ideal foreman will cultivate the habit of seeing with his eyes continually. There is nothing that makes a foreman more lame than the absence of this trait in his make-up. Every step he takes in every minute of the day, if this habit is cultivated, will show some point that can be bettered or improved, and he should not only make use of it himself, but, if possible, educate every man under his charge to cultivate the same habit. It is deplorable to have a foreman who is an excellent mechanic and all right in every other particular, and utterly without this trait, and I have no doubt every one of us have seen such men.

"I will say in conclusion, however, that one of the most important things about a good foreman is that he shall have a good temper that he shall make himself easy of approach to both men and boys, and that if anyone offers a suggestion he should never in any case get up on his dignity and say: 'Mind your own business; I am running this place.' There have been thousands of dollars of loss caused by just that spirit, and I trust that the American foreman in general is entirely too broad in his ideas to express himself in this manner."

WILL PURCHASE CARS AND ENGINES.

According to the daily Consular Reports, Vice-Consul Ernest Santi makes the following report from Milan: The Italian State railways have decided to spend $5,600,000 in buying new material. Manufacturers in all countries will be allowed to make bids. Among the rolling stock to be bought will be 50 first-class passenger cars, 100 second-class, 250 third-class, 300 baggage cars, and 16 toilet cars. These toilet cars are the idea of an expert, and they are to be used exclusively on the express lines on the so-called "American trains." They will be built as follows: About 60 feet long between the buffers, 9 feet wide and 13 feet high. This is the present idea, which most likely will be modified in the future. These cars will have a corridor running through the center, on one side of which there will be water-closets, while on the other will be lavatories. For each use of this convenience passengers will have to pay a small extra fee, which, in all probability, will be fixed at from 4 to 6 cents. The car will be in charge of women attendants, who will be responsible for its proper care and condition. The passenger cars to be bought will have the same dimensions as the toilet cars and will weigh about 30 tons each. The first class cars will carry 39 passengers per car, the second 56, and the third from 80 to 90. The cars carrying both first and second class passengers together will carry 50 passengers. The cars of all classes will be divided into eight compartments, of which four will be for smokers, one for ladies and children, and the rest for other passengers. The new freight cars to be ordered will have the following dimensions: Open cars—length between buffers, 28 feet; height, with braker's room, 10 feet, and width 9 feet. Box cars—length between buffers, 32 feet; height 12 feet, and width 9 feet. The open cars will weigh 10 tons and will carry 18 tons, while the box cars will weigh 11 tons and carry 16 tons.

CORRUGATED SIDE SHEETS—C. & N. W.

The Chicago & North-Western has received a lot of thirty engines from the American Locomotive Company, which are intended for heavy freight service. One of the important features of these engines are the corrugated firebox side sheets, an illustration of which is herewith given. The corrugations extend throughout the length of the side sheet, excepting the last three rows of staybolts on each end. The object of the corrugation is to afford enough flexibility to obviate the cracking of side sheet due to expansion and contraction caused by the changes in temperature. It is also claimed that with this method that the heads of the staybolt as well as the plate are uniformly heated, thus obviating the trouble caused by leaky staybolts. It is stated that these side sheets are proving to be quite successful on the C. & N. W.

The reports of the numerous large rail orders that have been placed, indicate that there will be some extensive railway construction work this year. The Pennsylvania and the Harriman lines are among the largest purchasers of rails for 1908 delivery.

NEW RAILROAD SHOPS AT STRATFORD, ONT.

Among the various railroads that are reconstructing and enlarging their locomotive repair shops according to modern designs is the Grand Trunk Railway System, which is spending large sums of money on its various repair shops over the entire system. Those of particular interest on the road are the new shops now under construction at Stratford, Ont., and Battle Creek, Mich.

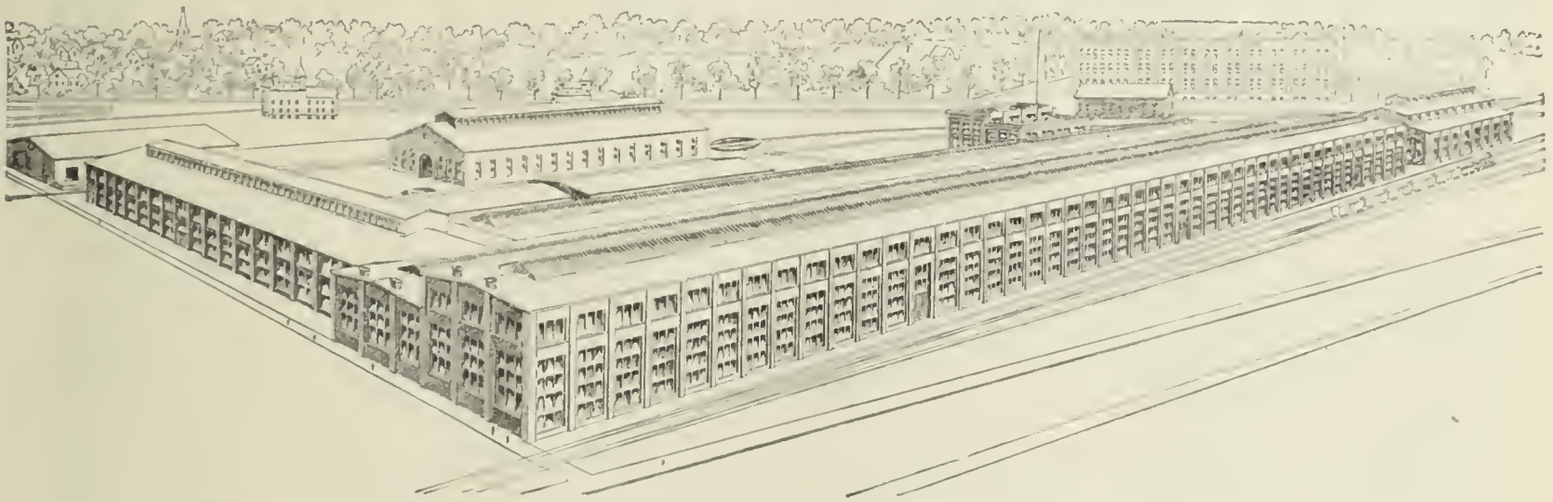
This work, as well as the various other similar jobs now under construction, seems to be in accordance with the natural tendency of the railroads to adopt modern methods in their repair shops to turn out the maximum amount of work.

The accompanying line engraving illustrating the general layout of the new shops at Stratford, Ont., for the Grand Trunk Railway may be of interest, in that it is a typical example of the character of the improvement being done on that road. The large machine and erecting shop, 616 feet long by 175 feet wide, and boiler shop, 154 feet long by 135 feet wide, indicated in the foreground, are now under construction, and are being rushed as fast as possible with the hopes of having fifteen bents under cover and in operation this winter. The above mentioned shops occupy nearly three acres of ground space—that indicates the immensity of this structure. The building to the left and adjoining the boiler shop is now standing, and is used for the repair of locomotive tenders.

R. Patterson, master mechanic at Stratford, Ont., is at present completing the machine tool layout for the machine and erecting shop that is arranged to handle the work on the various parts of a locomotive in the most economical manner, and is the result of considerable investigation and study on his part. Most of the large machine tools are to be driven individually with electric motors, as this practice has proven by experience to be the most desirable. This innovation of individual electric drive has revolutionized the machine tool layouts, in shops where belt or group drive were used, ever since the desirable features of separate drive were realized by engineers. One of the facts in favor of this drive is that the tools may be placed in any convenient space about the shop, regardless of the source of power, as the latter fact with belt drive, determines the location of machines within a short distance of shafting. The common method of belt drive will be used for the smaller machine tools that require less power to drive.

Considerable use is to be made of compressed air as a source of power for the various tools and appliances throughout the plant. Some of its uses are the driving of riveting machines, chisels, turntable motor, forge fires, blowing-out engines, painting, etc. This system of operating tools has proven by experience to be flexible and most satisfactory for the purpose it is to serve.

The new shop will be capable of repairing twenty-eight engines standing over pits at the same time, and should this be



GRAND TRUNK SHOPS AT STRATFORD.

The other proposed buildings indicated in the background of illustration, are, reading from left to right, the storehouse, 60x200 feet; the blacksmith shop, 100x300 feet; the power house, 90x90 feet, and the foundry, 110x140 feet. The construction of these buildings will follow in order of their importance and needs after the machine and erecting shop is well under way and the weather permits. The old machine shop, that is being torn down in sections as fast as the new shop is erected, occupied a portion of the space covered by the new building.

As the ground selected for the plant was irregular and low in places, it was necessary to fill and level off surface of ground before starting construction work.

Concrete piles that have only of late years attracted the attention of engineers for their durability and comparative less cost, were used in foundations of the new boiler shop and a portion of the new machine and erecting shop. It was necessary to drive these piles from fifteen to eighteen feet below the average elevation of the ground to provide sufficient bearing power for building foundations. The concrete piling thus far have given satisfactory results, and no trouble is anticipated with them. Messrs. Davidson and Von Aueberg of Montreal, Que., were awarded the piling contract. The foundation concrete work is under charge of George Mitchell, master of bridges and buildings department of the railroad.

The building walls are of reinforced concrete with the outside surface finished so as to give a neat appearance. While this building does not possess any striking architectural designs, it is marked with its massiveness, clear cut lines, and simplicity of construction. The structural steel is being fabricated and erected by the Canadian Bridge Company, Walkerville, Ont. The general building contract has been awarded to B. V. Hole of London, Ont., whose work begins shortly after the erection of the structural steel.

insufficient space in the future, the engineers have arranged the lay-out so that the capacity of the shop can be increased at any time.

A cross section through the center of the machine and erecting shop is illustrated herewith, and indicates the large, magnificent 120-ton electric traveling crane, that spans the engine pit bay, lifting up one of the largest locomotives operated on the Grand Trunk Railway, and conveying it to a repair pit.

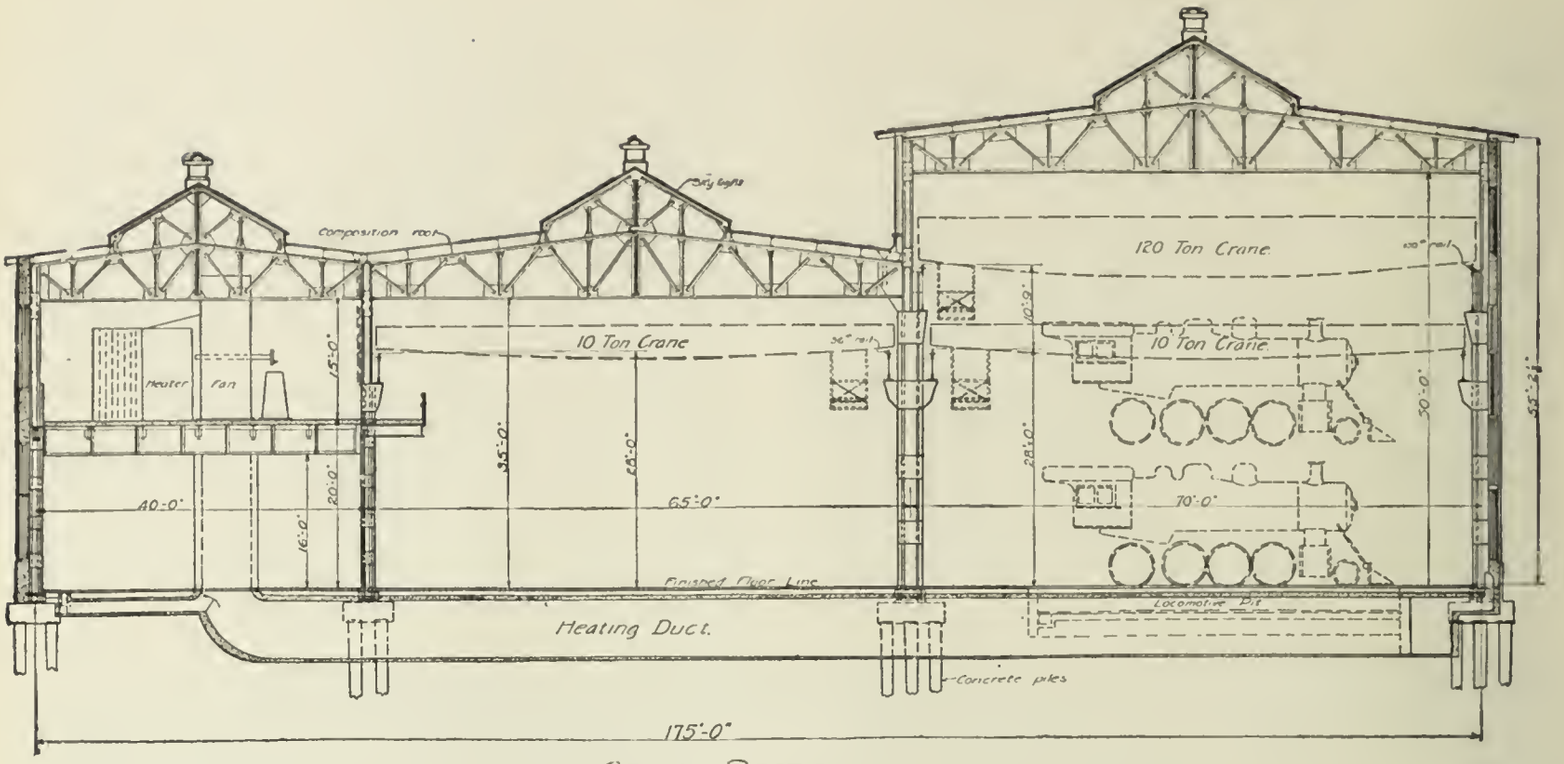
Anyone seeing this practice of conveying a locomotive overhead with men working underneath, for the first time is inclined to have a queer sensation of fear, thinking that if by some mishap what the results would be should the locomotive fall. This method of handling locomotives has proven entirely satisfactory wherever used, and it is marked with many advantages over the old style method of extending a track from a turntable or ladder on to the various pits. Jacking-up engines to place drivers, etc., is also eliminated with this practice.

Some of the equipment done away with by the use of the large crane to place locomotives at the various pits, is the transfer table with its necessary pit, that ordinarily covers valuable space and otherwise could be used for shop purposes.

A 10-ton electric traveling crane is indicated in illustration installed in the same bay directly below the large 120-ton crane that handles the lighter repair parts. This crane is particularly designed to rapidly handle miscellaneous parts thus relieving the large crane that is slow to act, due to its mass.

The heating duets, indicated under the floor line in illustration, provide passage for the distribution of hot air received from heater located on balcony floor throughout the entire shop. This system of heating shop buildings has proven successful in the past, as the exhaust steam from the power house, as well as the fan engine, is utilized for heating coils in heater.

Separate lockers will be provided at convenient places throughout the shops for men to keep their belongings. In



CROSS SECTION
OF
MACHINE & ERECTING SHOP.

some cases these lockers will be portable, so that men working on odd jobs around the shop can move lockers near their work.

Drinking fountains with a continual stream of artesian water flowing are to be installed at convenient places throughout the shop. Lavatories will also be arranged in various portions of the shop. At night the shops will be brilliantly lighted by one of the improved systems of vapor lamps which have recently been perfected.

Considerable credit is due the engineers and constructors for their promptness and up-to-date methods in handling both the plants at Stratford and Battle, Creek, Mich. This work is all under the supervision of The Arnold Company, Engineers and Constructors, Chicago, Ill. The work is carried on under the authority of E. H. Fitzhugh, third vice-president, Grand Trunk Railway, Montreal, and designs are subject to his approval as well as that of W. D. Robb, superintendent of motive power. Considerable credit is due R. Patterson for the general facilitation of the construction work as well as the admirable way in which the repair work on locomotive boilers during construction of the new shop was handled in spite of being cramped for room.

TESTING STAYBOLTS.

I will give a brief statement showing how the test was conducted. It consisted essentially of putting four bolts into sheets of fire-box steel, representing the inner and outer sheets of the boiler and fire-box. These are spaced 4 inches apart, as they would be in service, $4\frac{1}{4}$ inches between centers, the plates being of regular fire-box thickness. Between these plates we placed a spring with the equivalent power of the boiler pressure. This had a tendency to press the sheets apart in about the same ratio. We clamped these sheets, the outer sheet to a table, and the inner sheet to a beam that was arranged to be vibrated back and forth by power, with a total of 3-32 inch in either direction. The beam was moved by a ram, one end of it being held by a pin connection to the table of the machine, and the other driven by a connecting rod from a crank. This movement was kept up continuously until the bolts commenced to break and until there was only one remaining. The results seemed to show that the machine worked fairly uniform on the various samples, and the fractures that developed were due entirely to the bending action. With solid bolts they averaged more uniformly than they did with flexible bolts. There were considerable variations in these, but this we attribute to the different pressure that was applied to them in screwing them into the sheets. The results were decidedly surprising. The variation in breaking points between the flexible bolt and the rigid one ranged from 10,664 vibrations, as the largest number that the rigid bolts stood, to 41,300, as the largest number that the flexible bolts stood, under conditions as nearly the same as we could apply it. These were $1\frac{1}{8}$-inch bolts. We had no smaller flexible bolt to experiment with, but we made a number of other tests with rigid and hollow bolts of 1-inch diameter. Their breaking point ranged from 8,300 down to 3,400.—*Wm. McIntosh*, before the M. M. Convention.

TWENTY DOLLARS CASH PRIZES.

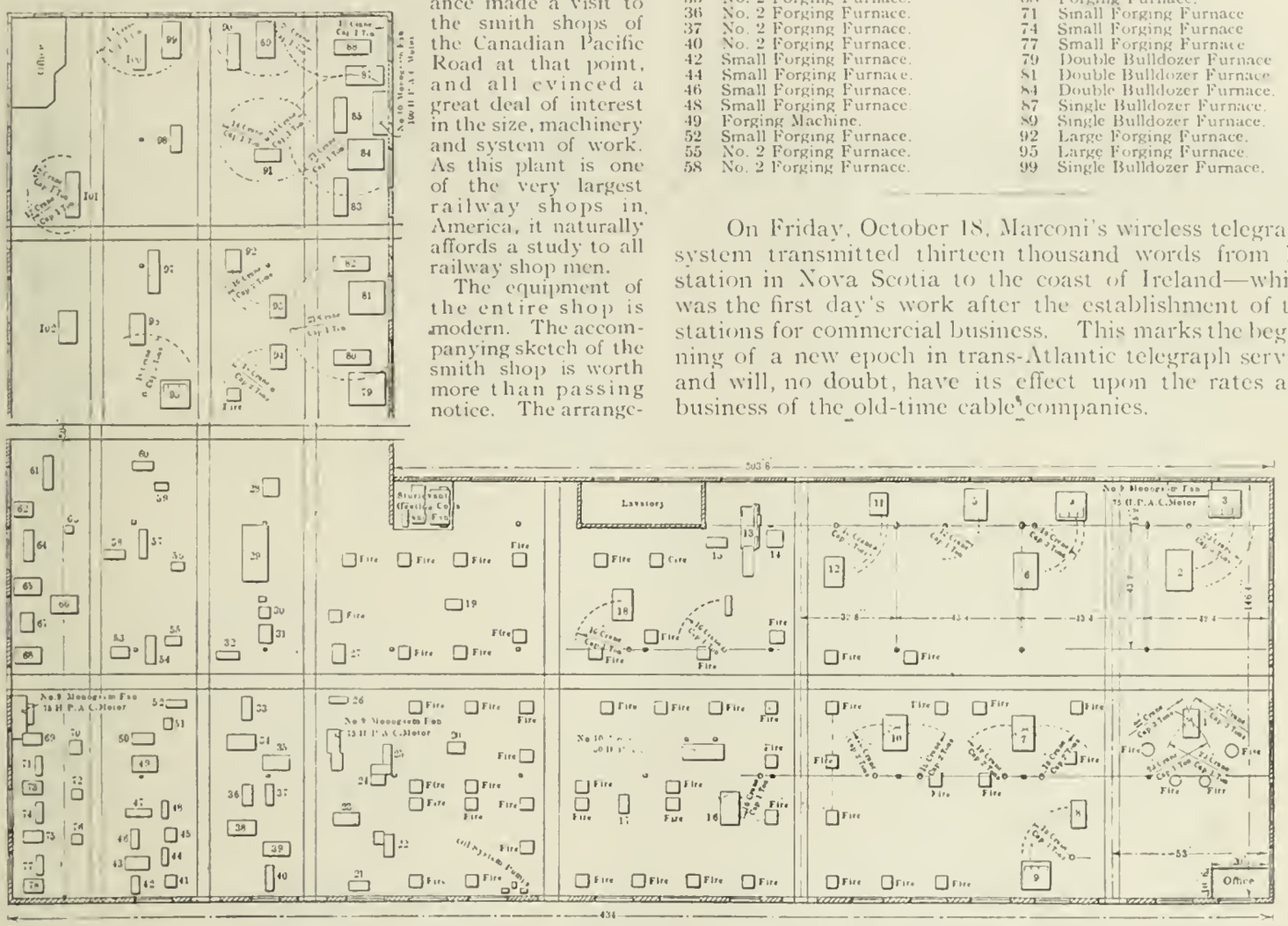
The RAILWAY JOURNAL wishes to take in over 5,000 new subscribers between now and January, 1909, and is willing to pay railroad men well to help us do it. Besides a liberal commission on each subscription we will pay $15 cash to the railroad man who will send us the greatest number of new subscribers and renewals during the year 1908, and will pay $5 for the second best list. Write us now for the agency.

In a letter received from Col. Jno. T. Dickinson, vice-president of the Bliss Electric Car Lighting Company, occurs the following: "Another very strong confirmation of the efficiency of the Bliss System of Electric Car Lighting is the fact that the Pullman Company has ordered Bliss Axle Light Equipments to be applied to all Pullman private cars. It is well known that only the most modern and approved equipment is used on these cars for the safety, comfort and convenience of their patrons."

CANADIAN PACIFIC SMITH SHOP.

During the Montreal convention of the International Railroad Master Blacksmiths' Association, the members in attendance made a visit to the smith shops of the Canadian Pacific Road at that point, and all evinced a great deal of interest in the size, machinery and system of work. As this plant is one of the very largest railway shops in America, it naturally affords a study to all railway shop men.

The equipment of the entire shop is modern. The accompanying sketch of the smith shop is worth more than passing notice. The arrangement of the many forges, furnaces and machinery is worth a careful study. The tools and furnacesare as follows:



LIST OF TOOLS.

MACHINE NO.	DESCRIPTION.
1	2,000-lb. Hammer, old.
2	6,000-lb. Hammer, new.
6	3,500-lb. Hammer, old.
7	1,200-lb. Hammer, old.
8	3,000-lb. Hammer, old.
10	1,200-lb. Hammer, old.
12	1,500-lb. Hammer, old.
13	5-in Upsetting Machine, new
16	600-lb. Hammer, old.
17	400 lb. Hammer, old.
18	600 lb. Hammer, old
19	250-lb. Hammer, new.
20	250 lb Hammer, old
23	Punch and Shears, old.
24	Beaudry Hammer, new.
27	Flat Iron Saw, old.
30	Spring Rolls, new.
31	Spring Taper Mach., old.
34	200-lb. Hammer, old.
35	100-lb. Hammer, old.
38	100-lb. Hammer, old.
39	100-lb Hammer, old.
41	Eye Bolt Machinne, old
43	1½-in Bolt Header, old
45	Eye Bolt Machine, old.
47	2 in. Forging Machine, new.
50	1½-in Rivet Machine, new.
51	Forging Machine, old
53	Single Shears, old.
54	2-in Upsetting Machine, old
56	2 in Bolt Cutter, new
57	3-in. Upsetting Mach., old.
59	2 in. Bolt Cutter, new
60	2 in Nut Burring new
61	3 in Forging Machine, old.
63	1½-in. Nut Burring Mach., new
64	1½ in Nut Machine, old
66	Nut Burring Mach., old

LIST OF TOOLS

MACHINE NO.	DESCRIPTION.
67	⅝-in. Nut Machine, old.
69	1½-in. Bolt Header, old.
70	Round Iron Shears, old
72	Round Iron Shears, old.
75	1½-in Bolt Header, old.
76	Round Iron Shears, old.
78	2-in. Bolt Header, new
80	Bulldozer No. 6, old.
82	Bulldozer No. 5, old.
83	Bulldozer No. 6, old
85	Bulldozer No. 4, old.
88	Bulldozer No. 5, old.
90	Bulldozer No. 4, old
91	Punch and Shears, old.
93	2,000-lb. Hammer, old
94	1,200-lb. Hammer, old
96	2,000 lb. Hammer, old.
97	Punch and Shears, old.
98	Punch and Shears, old
100	Bulldozer No. 4, old
101	Punch and Shears, old.
102	600-lb. Hammer, old

LIST OF FURNACES.

MACHINE NO.	DESCRIPTION
3	Extra large Forging Furnace
4	Large Forging Furnace
5	Case Hardening Furnace, 5-ft
9	Large Forging Furnace.
11	Large Forging Furnace
15	Small Forging Furnace.
21	No 2 Forging Furnace
25	No 2 Forging Furnace
26	Small Forging Furnace
28	Spring Bending Furnace
29	Spring Tempering Furnace.

LIST OF FURNACES—Cont'd

MACHINE NO.	DESCRIPTION
32	Spring Tempering and Nibbing Furnace.
33	No. 2 Forging Furnace.
36	No. 2 Forging Furnace.
37	No. 2 Forging Furnace.
40	No. 2 Forging Furnace.
42	Small Forging Furnace.
44	Small Forging Furnace.
46	Small Forging Furnace.
48	Small Forging Furnace.
49	Forging Machine.
52	Small Forging Furnace.
55	No. 2 Forging Furnace.
58	No. 2 Forging Furnace.

LIST OF FURNACES—Cont'd

MACHINE NO.	DESCRIPTION
62	Forging Furnace.
65	Forging Furnace.
68	Forging Furnace.
71	Small Forging Furnace
74	Small Forging Furnace
77	Small Forging Furnace
79	Double Bulldozer Furnace
81	Double Bulldozer Furnace
84	Double Bulldozer Furnace.
87	Single Bulldozer Furnace.
89	Single Bulldozer Furnace.
92	Large Forging Furnace.
95	Large Forging Furnace.
99	Single Bulldozer Furnace.

On Friday, October 18, Marconi's wireless telegraph system transmitted thirteen thousand words from his station in Nova Scotia to the coast of Ireland—which was the first day's work after the establishment of the stations for commercial business. This marks the beginning of a new epoch in trans-Atlantic telegraph service and will, no doubt, have its effect upon the rates and business of the old-time cable companies.

FAILURES AND SPECIFICATIONS OF FIREBOX STEEL.

(By M. H. Wickhorst before the American Society for Testing Materials.)

In general, firebox sheets fail in one of two ways; first, gradual failure—the sheet may have a good many small cracks which are mostly in a vertical direction. These cracks are thickest radiating out from the staybolts and frequently run from one staybolt to another in the same vertical row, but never between staybolts horizontally. These cracks are almost always on the fire side and at times extend through the thickness of the sheet, first going through next to the staybolts. Such sheets are almost always accompanied with more or less corrugation and the cracked and corrugated condition is almost always confined to the lower half of the sheet. Secondly, sudden failure, or rupture; the sheets may fail by a single crack or rupture from a foot to several feet long. In bad cases, the crack may extend from the mudring to the crown sheet, but ordinarily the crack is confined to the lower half of the sheet, extending upward from the mudring or from a few inches above it, and is always near the middle of the side sheet longitudinally. Such sheets may show no corrugations and may show very little if any other defects. The failures of the first kind are of gradual formation, but those of the second class occur suddenly.

CONDITIONS OF FAILURES CLASSIFIED.

About two years ago a lot of records and papers concerning failures of firebox sheets were gathered out of the files in the superintendent of motive power's office of the C. B. & Q. Ry., Lines east of the Missouri River, and a classification made of the conditions under which the failures occurred, with result

as shown below. These failures include only those occurring in class two mentioned above, or ruptures:

		No.	Per Cent.
1	Washing—Cooling	3	7.7
2	Washing—Using nozzles	16	41.0
3	Washing—Filling	2	5.1
4	Washing—After filling	7	17.9
5.	In shop or house, cold	7	17.9
6.	In house, hot	2	5.2
7.	Discovered arriving at terminal	2	5.2

It will be noted from the above that 71.7 per cent occurred while the engine was being washed, this including 41 per cent where nozzles were being used at the time; 17.9 per cent occurred while the engine was cold under other circumstances, making a total of 89.6 per cent for the failures while the engine was cold, and thus leaving 10.4 per cent for such failures while the engine was hot, but it is not improbable that if the full details were at hand of the conditions attending the failures in these latter cases, that in some, or perhaps all, the records would show the engine had been cold. When washing the boilers, cold water had probably been used in all cases, and the above figures would seem to argue very strongly in favor of keeping the boiler continuously hot, and to use a method of washing out where the boiler does not get cold, say not below 150° Fahrenheit.

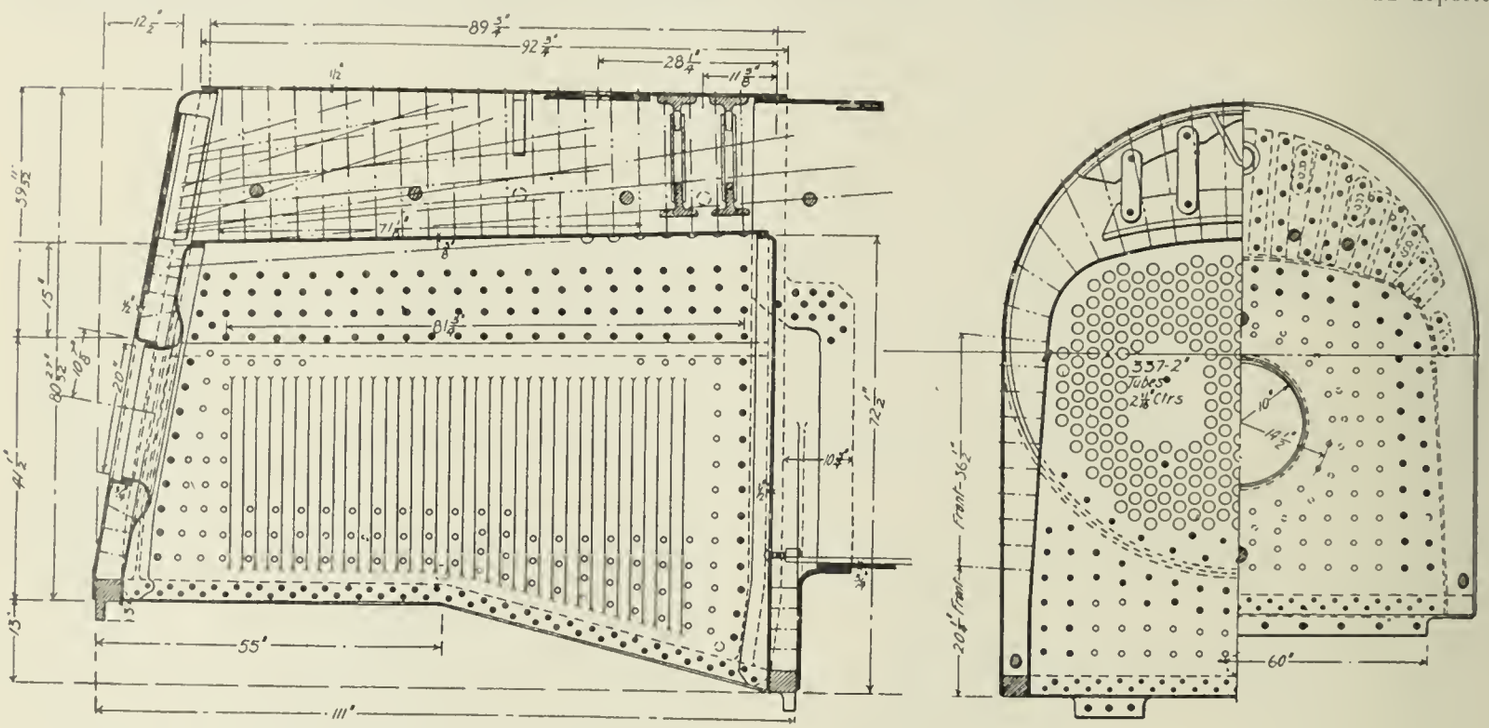
TEMPERATURE TESTS OF FIREBOX STEEL.

If the metal is at any time heated to a red heat, or to near a red heat, failure from this cause would be the natural result, and in order to get some information concerning the temperatures actually attained by locomotive firebox sheets, etc., under conditions of service, I arranged a method of test which consisted of boiling water in a can with thin sheet steel sides, with a bottom of ½-inch boiler plate, 4 inches in diameter, brazed to the sides. The boiler plate has a hole drilled into the side ½-inch in diameter extending to the middle of the plate. Heat is supplied by a specially constructed "pepper box" burner, which gives a lot of gas flames over a flat, circular area of about four inches in diameter. The junction of the thermo-couple is inserted into the hole of the plate to the middle, and the temperature is read on a galvanometer. Some preliminary results showed that if a fire-box sheet (including flue sheet) or the flues are free from scale or mud, the temperature of the metal probably does not at any time exceed the temperature of the water more than 50° Fahrenheit, providing, of course, the circulation is sufficient to keep the water always in contact with the metal. Under the conditions of this experiment, with no scale or water on the plate the metal attained a temperature of about 1300° Fahrenheit, and it may be noted that with ½-inch scale the metal attained a temperature of about 200° above the temperature of the water with ¼-inch something over 400°.

In a locomotive fire-box, the average temperature of the metal, if not protected by the water, would probably run between 2000° and 3000° Fahrenheit, and with scale ½-inch thick and with water in the boiler, the experiments indicate that the metal, including fire-box ends of the tubes, can readily attain a temperature of several hundred degrees above the temperature of the water, and it is not unlikely in some cases the metal actually attains a low red heat.

MUD ACCUMULATIONS.

The action of the heat causes the water to flow upward between the tubes, and the counter current must flow downward between the tubes and shell of the boiler. The water evaporated from the side and other sheets of the fire-box is probably supplied mostly by a current flowing backward along the bottom of the barrel of the boiler. When this current reaches the flue sheet it divides, half going to each side water-leg, the current finally ending in the back water-leg where the two side currents meet. Of course, while this backward movement of the water is going on, the formation of steam also maintains an upward movement. This circulation carries all solid material that is light enough to move with the water into the back water-leg, where the circulation is probably least rapid. The heavier particles of mud and very light scale deposit on the back mud-ring up as high as the fire line, which is about six inches above the mud-ring. There is on the back mud-ring a cubic foot or so of quiet water space into which the mud and lime sludge is first carried, and when this space is filled up deposits accumulate on the side mud-ring, and finally accumulations may occur on the front mud-ring. Critical examination of the mud deposits in a boiler after the water is drawn out is apt to show very little, if any, mud on the front mud-ring, and a depth of six or eight inches on the back mud-ring, with more or less mud on the sides. No mud is apt to be present in the barrel of the boiler, as determined by a view through an inspection hole in the back flue sheet under the flues. Where there are also scale deposits, these will be found mostly in the barrel of the boiler and on the front mud-ring, as scale is too heavy to be carried round by the circulation, but the mud deposits will be found about as I have described above. Up to a height of four or six inches above the mud-ring, the mud accumulations remain below the fire line and cannot cause overheating of the sheets, but if more mud is allowed to accumulate in a boiler, it cannot be taken care of in this space. Such excess mud makes more or less trouble by keeping in the water circulation, depositing quickly on the tubes, crown sheet and particularly in the side and back water-legs as soon as active steam production stops and in this way is apt to cause over-heating of the side and back fire-box sheets by preventing free access of water.



If by means of a blow-off arrangement the back mud-ring can be kept free from mud, it would seem clear from the above considerations that the boiler can be kept free from excessive mud accumulations, since all the mud is carried by the circulation into the back mud-ring. A blow-off in the middle of

the back water-leg right above the mud-ring removes mud from where it tends to accumulate most, but experience has shown the author that the mud is removed right around the blow-off cock, but on either side the accumulations are not disturbed. This led to trial of blow-off pipe laying on the full length of the back mud-ring and perforated with holes spaced about four or six inches apart. This arrangement has been tried somewhat extensively, and experience shows that mud can by this means be thoroughly removed from the boiler without the necessity of cooling down the boiler and washing.

Where water is treated with soda ash, the function of the soda ash is to cause the lime and magnesia salts to come down as a sludge instead of adhering as scale, and the circulation then carries the sludge into the back water-leg where it can be successfully removed through a perforated blow-off pipe placed on the back mud-ring. By a combination of treatment of water with soda ash, the perforated blow-off pipe mentioned and system of blowing out at terminals, engines can be made to run regularly 5000 miles between wash-outs and without change of water other than obtained by the blowing out at terminals.

TEMPERATURE TESTS OF INJECTED WATER.

The water supplied into the boiler by means of an injector has a temperature ranging from 150° to 180° Fahrenheit, while the water in the boiler has a temperature with modern engines not much below 400° Fahrenheit. Where water is injected into the boiler through an ordinary check valve placed on each side, this water drops to the bottom of the boiler unless there is active steam production going on to promote circulation.

If an engine is standing still, as, for instance, at a station, and the injector is on, the injected water seeks the lowest part of the boiler, which would be the water-legs around the fire-box. In order to know what was the extent of the segregation of such injected water, some tests were made with thermometers inserted into the side of the boiler. The apparatus consisted of a brass oil cup and extended about four inches into the water, and this held an ordinary chemical thermometer and a guard made of gas pipe which protected the thermometer.

It will be noted that the oil cups were inserted into the left front corner of the outside fire-box sheet, one about on a level with the crown sheet, one about seven inches above the mud-ring, and two applied in between. They were placed just a little ahead of the back tube sheet. One thermometer was also arranged in the delivery pipe just below the boiler check, in order to get the temperature of the water before entering the boiler.

The method of test was to get the water level at or near to the bottom of the glass, raise steam pressure to 195 pounds, as shown by the gauge on the engine, and take temperature readings. The tests were made in the roundhouse, steam being produced by firing the engine with bituminous coal. They were intended to stimulate the condition of an engine that has just arrived at a station, and whose injector is applied to pump water while the engine is standing still. Having obtained the water level and pressure as before mentioned, the injector was applied and the boiler filled to the top of the glass, temperature readings being taken every minute in most of the tests.

SPECIFICATIONS FOR FIRE-BOX STEEL.

The extreme limits for tensile strength of the various American specifications require fire-box steel to have 50,000 pounds per square inch as a minimum and 65,000 pounds as a maximum. In foreign specifications, the minimum limit seems frequently to run below 50,000 pounds per square inch. Formerly the American requirements for tensile strength were 50,000 pounds as a minimum and 60,000 pounds as a maximum. About fifteen years ago these limits were raised and were made 55,000 to 65,000 pounds respectively, based apparently on the initiative of the Pennsylvania Railroad Company. Within the last few years, however, there has been a tendency to lower the limits, and the present limits of the American Railway Master Mechanics' Association are 52,000 to 62,000 pounds. It will be seen from what has been presented above that, under ordinary conditions of service, the locomotive boiler (including fire-box, and especially the lower parts) is frequently subjected to severe overheating, differences of temperature and severe and sudden changes of temperature around the lower parts of the fire-box and lower flues. It seems to be the result of experience that the harder grades of fire-box steel do not stand these abuses satisfactorily, but seem to develop cracks and ruptures, and very soft steel under similar conditions seems to stand these abuses a longer time before failure occurs, and, in fact, may become badly corrugated and distorted and still remain serviceable. It has been my experience that, as a general proposition, where fire-box sheets fail from single rupture without otherwise being badly cracked or corrugated, that the carbon runs toward 25 per cent or higher and may run as high as 35 per cent. On the other hand, the sheets which fail by corrugation and gradual cracking generally contain carbon between 12 to 25 per cent. It seems, therefore, that as a general proposition, the softer grades of fire-box steel give better service than the harder grades, and the C. B. & Q. Ry. Co. has recently changed the requirements for fire-box steel to tensile strength running from 50,000 to 58,000 pounds per square inch, the former limits being from 55,000 to 65,000 pounds per square inch.

It seems clear to the author, however, that the problem of long life of fire-box steel is not so much a question of quality of steel, but is mostly up to the railroads. By suitable treatment of the water supplies, a proper arrangement for delivering feed water into the boiler, and proper methods of caring for boilers in roundhouse and elsewhere, long life can be expected with any grade of fire-box steel, and most of the complaints of poor steel are then apt to disappear.

CONCLUSION.

In conclusion, the author suggests that long life of fire-box steel is to be obtained: First, by suitable treatment of feed water; generally plain soda ash treatment to destroy all sulphate of calcium will answer the purpose, but where the water is very hard softening with lime will also be desirable, second, by avoiding considerable and sudden variations of temperature due to cold feed water dropping to the bottom of the boiler when active steam production is not going on. Some feed water arrangement should be used which will not allow the water to thus segregate; third, by keeping the boiler continuously hot and avoiding wash-outs, especially with cold water, a blow-off pipe on the back mud-ring connected to a blow-off cock in the back corner in conjunction with a system of blowing will keep the boiler free from all accumulations if the water has been suitably treated. The blowing out is also necessary to keep the concentration of the water below the foaming point, say 200 parts per 100,000.

If the above are done, probably the quality of fire-box steel is of secondary importance; but the author suggests that the quality of steel called for in the specifications of the American Railway Master Mechanics' Association, tensile strength of 52,000 to 62,000 pounds, will probably in general be most satisfactory.

Claims for overcharges to the extent of more than $500,000 have been filed with the Interstate Commerce Commission by the Texas Cattle Raisers' Association.

The Denver & Gulf has filed notice of increase of capital stock from $2,000,000 to $10,000,000. The road is chartered to build 500 miles, from Denver, Colo., to Snyder, O. T.

The South Carolina sate board of railroad assessors has increased the total assessment of the roads of that state over $11,000,000, of this amount the Southern Railway bears over half the increase.

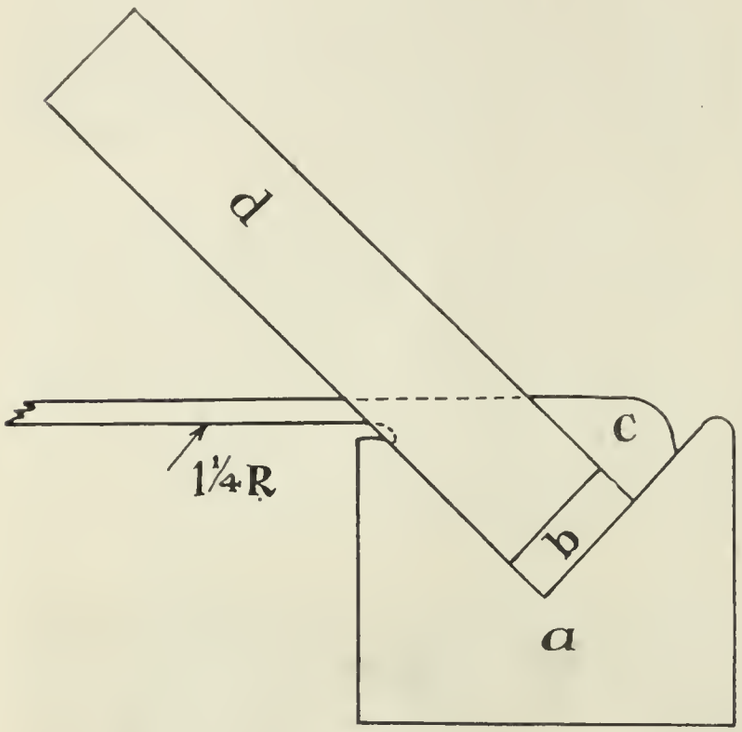
One of the consular officers in the Levant reports that a business official there would like to hear from American manufacturers of or dealers in iron beams. Prices should be quoted per pound, delivered f. o. b. New York, and time required to deliver the same after receipt of order should also be stated. List of beams wanted may be secured by interested parties from the Bureau of Manufactures at Washington.

A foreign government official has applied to one of the American consulates in Europe for the names and addresses of American builders of locomotives, as he would like to correspond in German with such firms in regard to the possibilities of purchasing American locomotives for the state railways. Catalogues printed in German would be a decided advantage. Further advice can be secured by addressing the Bureau of Manufactures at Washington, D. C.

The press despatches from Austin, Tex., state that fifty-seven of the seventy-four roads operating in Texas have been ordered by the State Railroad Commission to provide themselves with additional equipment. The commission proposes to divorce the Texas lines from their outside connections, if it can, in the matter of the family equipment arrangement, and it wants the leases broken up and owned up in the single lines. The Cotton Belt is ordered to do it, and mark the cars in the name of the Texas Company. Where other lines have large amounts of equipment under lease, the lessee is ordered to buy about the same amount of new equipment. The commission evidently believes that the roads will simply buy the equipment and stop leasing.

TOOL FOR WELDING PILE BANDS.

The RAILWAY JOURNAL is indebted to C. K. Abbott, foreman of the Cotton Belt smith shop at Tyler, Tex., for the accompanying sketch of his device for making pile bands or rings. A is an ordinary V block, such as is used on a steam hammer for bending purposes, B is a block to place in the V block, one side the radius of



an ordinary pile band outside; C is block with handle long enough for the workman to put in place after pile band has been placed; D is pile band heated ready for welding. Mr. Abbott states that he has found this device very satisfactory and will gladly give further particulars to anyone writing to him for same.

MARKET FOR BOILER TUBE CLEANER.

The Consular Reports state that one of the American consular officers stationed at one of the largest ports in a certain European country reports that he has every reason to believe that such a device as a boiler-tube cleaner would be welcomed at that port. The method invariably employed there at the present time for removing scales from the exterior of boiler tubes is that of tapping the crust with hammers held in the hands of the workmen. The soot with which the interior of the tubes becomes lined is removed by means of a spiral brush about nine inches in length, to which an iron rod of sufficient length is screwed. Both these methods are necessarily slow, and there appears to be a demand for a device capable of effecting the same or better results with great rapidity. The consul mentions that the only expert objection made to him in regard to the proposed machine is the possibility of injury to the metal of the tubes, or to the tube joints, by reason of the great vibration accompanying the working of the cleaner. He states that there is a large field for American manufacturers of machinery of this class if they will take the trouble to provide printed matter in the local language, and to accord encouraging terms to the local agent. He furnishes the name of a dealer in ship supplies who desires to receive one of these devices for the purpose of demonstrating its capacity, and also a supply of advertising matter printed in the language of the country. The consul suggests that this dealer be written to without delay. Particulars as to addresses can be secured from the Bureau of Manufacturers at Washington.

NEW EQUIPMENT.

The New York, New Haven & Hartford has placed orders for 52 passenger cars.

The Louisville, Henderson & St. Louis has ordered 2 locomotives for spring delivery.

The Mobile & Ohio is receiving a portion of the 1000 freight cars ordered some months ago.

The Baldwin Locomotive Works are building 8 locomotives for the Tehauntepec National of Mexico.

The Cincinnati, Bluffton & Chicago will soon be in the market for new cars and motive power.

The American Locomotive Co. has received orders from the Western Railway of Havana for 3 consolidation engines.

The Havana Central has ordered 50 36-foot cars of 60,000 capacity from the McGuire-Cummings Mfg. Co. of Chicago.

The Pressed Steel Car Co. of Pittsburg is delivering 80 steel passenger coaches to the Pennsylvania. The cars are 83 feet long, and have 6-wheel trucks. They are considered wreck-proof.

AMONG THE SUPPLY FIRMS.

The Davenport Locomotive Co. has opened an office at 107 Third Avenue, Minneapolis, Minn.

Chas. S. Sweet has been appointed assistant to the president of the Pullman Co. at Chicago.

The Pennsylvania Brake Beam Co. of Easton, Pa., has arranged to move its shops to Danville, Pa.

Frank K. Highberger has been made manager of sales for the New York State Steel Co. of Buffalo, N. Y.

The Cleveland Punch and Shear Works of Cleveland, Ohio, have moved into their new office building at 3929 St. Clair avenue.

The Heiser Locomotive Works of Erie, Pa., has been sending out an illustrated mailing card referring to their geared locomotives.

Alfred Lovell, formerly S. M. P. of the Santa Fe, has opened an office as consulting engineer at 819 Harrison Bldg, Philadelphia, Pa.

Messrs. C. H. Lewis, J. A. Overman and W. S. Van Buskirk are interested in the Standard Electric Headlight Co. of Indianapolis, Ind.

The Farlow Draft Gear Co. of Baltimore, Md., has moved into new offices in the Keyser building. J. H. Farlow is now manager of the company.

The Kilgore-Peteler Co. of Minneapolis, Minn., has issued Catalogue No. 5, illustrating and descriptive of the industrial and mining cars turned out by the company.

The General Electric Co. of Schenectady, N. Y., has issued Bulletin No. 4552, describing the construction of direct-current indicating instruments. The work is neatly illustrated.

The Spencer Otis Co. of Chicago has issued a handsome catalogue descriptive of the Economy rolled steel tie plates which this company handles. The booklet is well worth a careful perusal.

Stanley W. Midgley, formerly general sales representative of the National Car Coupler Co., has resigned to accept position of Western representative of the Curtain Supply Co., 85-93 Ohio street, Chicago.

The Erie Foundry Co. of Erie, Pa., has issued a neat illustrated booklet of the numerous steam hammers that company furnishes the trade. These booklets are sent freely upon request from any official or foreman.

Owing to the increase of its business on the Pacific Coast, the Independent Pneumatic Tool Co. of Chicago, has moved into larger quarters at San Francisco, now being located at 61 Fremont street, where a large line of tools are kept in stock.

George Westinghouse has been quoted as saying relative to the affairs of some of his concerns, as follows: "We think everything is in splendid condition. Not only was the report of the receivers satisfactory, but plans formulated for working out all details of the problem seemed to meet with favor. Everything connected with the affairs of the corporations shows a most hopeful situation. A detailed report on all these matters may be made public soon."

CONSTRUCTION AND IMPROVEMENT.

The Stephenville, North & South Texas has been completed to Hamilton, Tex.

The Burlington has arranged for extensive terminal improvements at North Platte, Neb.

It is stated that the Louisville & Nashville is to make a 50 mile extension to Quoltowah, Tenn.

The Illinois, Iowa & Minnesota contemplates building from Rockford, Ill., to Milwaukee, Wis., about 100 miles.

The Pacific, Idaho & Northern proposes to build a 35-mile extension between Roseberry and Evergreen, Idaho.

Construction work on the Oaxaca & Orient is to begin this month. This road is projected to run from Tule to Magdalena, Mex.

The Kansas City, Mexico & Orient has about completed its line between Wichita, Kan., and the Texas-Oklahoma State line.

The Fredricksburg & Southern has been chartered in Virginia, and it is supposed to be a Wabash project in connection with the Western Maryland.

The Houston Belt & Terminal is arranging to build a belt line and provide terminal facilities at Houston, Tex. P. G. Burns, of Ft. Worth, Tex., is chief engineer.

L. M. Bull of Stamford, Tex., is president of the Stamford & Northwestern, which is projected from Stamford northwest about 150 miles. Work is to begin this spring.

The Santa Fe is building a branch from Holly to Rocky Ford, Colo. This company has commenced work on an extension in Texas from Center to Tenaha, Tex.

The Mexican Central has been increasing its construction force on its Mexican City-Tampico extension. Considerable distance has been graded and is ready for the rails.

Construction on the Lane cut-off has been renewed by the Union Pacific. This road is also arranging to make some branch extensions to the coal fields of Wyoming.

YARDS OF SPOKANE & INLAND EMPIRE RAILWAY.

The Wisconsin Central plans to construct its line to Duluth, Minn., this year, which necessitates an extension of about 35 miles.

The Weatherford Mineral Wells & Northwestern has completed an extension to Graford, Tex., 20 miles, and has opened it to traffic.

A. A. Sweet of Salt Lake City is general manager of the Southern Utah, which is being built between Price and Miller Creek, Utah.

The Oregon Short Line has completed its branch between St. Anthony, Idaho, and the Yellowstone Park, western entrance, 70 miles.

The Rock Island has commenced construction work on its extension from Amarillo, Tex., west to connect with the main line in New Mexico.

The Grand Trunk Pacific has selected the Yellow Head Pass as the route through the Rocky Mountains in the extension to the Pacific.

The Rock Island-Frisco Line in Louisiana has been completed and opened for traffic to Opelousas, La.; also the Crowley branch to Crowley, La.

The press reports state that the Detroit, Toledo & Ironton will be extended from its present southern terminus to the coal fields in the South.

A large portion of the Virginia Air Line, which is building between Bremo and Lindsay, Va., is nearing completion. It is proposed to have 30 miles in operation the coming spring.

A company has been organized to build the Cumberland Valley & Nashville between Corbin, Ky., and Nashville, Tenn. J. H. Shearer is president of construction company, office at Monticello, Ky.

The Bessemer & Lake Erie is replacing wooden ties with Carnegie steel ties wherever renewal of ties is necessary. It is stated that steel ties are to be used in new construction work at an early date.

It is stated that the Delaware & Hudson will let contracts soon for additional extension work in Quebec Province. The company is now building a line from Pierreville to St. Jean des Chaillons, Que., about 50 miles.

H. W. Harrington of Grand Forks, B. C., is chief engineer of the Spokane & British Columbia, which is locating a line between Republic and Spokane, Wash., 145 miles. It is stated that work is to commence this coming spring.

President Jos. Ramsey, of the New York, Pittsburg & Chicago, states that he has arranged for the finances necessary for building the road. A portion of it is to be located between Pittsburg and Sunbury, Pa., at an early date.

Plans have been approved for the construction of 32 miles of the Pittsburg, Binghamton & Eastern, of which H. A. Schwanecke, Pittsburg, Pa., is chief engineer and vice-president. This is to be a branch of the New York Central lines.

The Ballinger & Abilene has been chartered and announcement has been made that construction work is to begin early this year, between Ballinger and Abilene, Tex., 53 miles. W. J. McDaniel of Ballinger, Tex., is chief engineer.

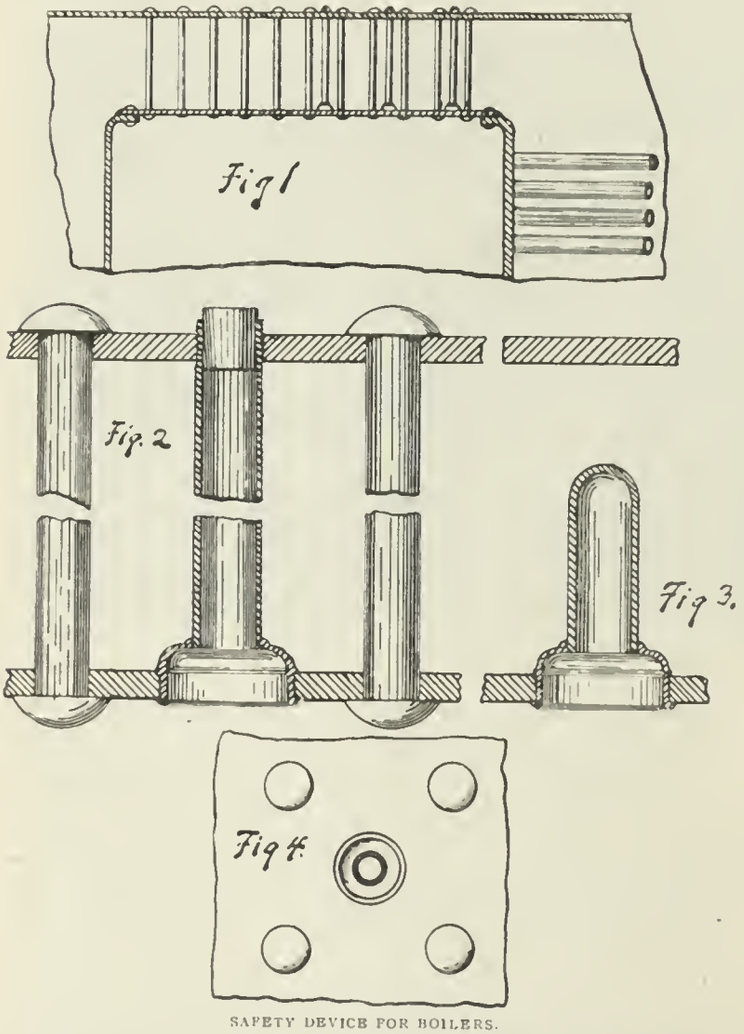
The Cincinnati, Bluffton & Chicago, has 52 miles in operation, the road having just been completed to Huntington, Ind. Construction work will be pushed early this year to Versailles to connect with the C. H. & D. F. E. Bracey is president of the Inland Construction Co., which has the contracts for the work.

F. L. Pitman is chief engineer of the North Coast, office at North Yakima, Wash. The road is building between Spokane and Seattle, Wash., 378 miles, with branches from Spokane to Walla Walla, 147 miles, and from the latter point to Kiona, Wash., 68 miles. Considerable construction work has been completed between Spokane and North Yakima.

SAFETY DEVICE FOR BOILERS.

Charles Letteri, foreman of the boiler department of the Pennsylvania Lines at Columbus, Ohio, has just been granted a letters patent on a device to obviate explosions in steam boilers.

The accompanying illustrations show the application of Mr. Letteri's device. Figure 1 is a sectional view of a locomotive boiler with the device applied. Figure 2 being a sectional view of a portion of the crown plate on a large scale,



SAFETY DEVICE FOR BOILERS.

also the roof plate, as they appear with the application of device, and Figure 3 is a similar view in a modified form. A bottom plan view of a section of the crown sheet with the device is shown in Figure 4.

Mr. Letteri states that the purpose of the device is to relieve the steam pressure before the crown sheet has been damaged and to provide a quick-acting safety device. It will be seen that both the coupling and the tube are open to the direct heat from the fire, but so long as the coupling and the lower end of the tube are covered with water they will remain unaffected by the heat of the fire. However, the instant they are uncovered and subjected to the steam pressure and the action of the intense heat the pressure of the steam will collapse the coupling and tend to blow it out into the fire. The heat of the fire and the steam pressure also tend to reduce or elongate the lower end of the tube and loosen the connection, so that when the steam pressure is exerted on the top of the coupling the portion of the coupling engaging the stem is forced downward by reason of the thin portion of the coupling, and even if the coupling should not be blown out of the opening in the crown-plate, the parts will be disengaged and an opening had through which the steam will pass into the fire-box. It is obvious that this rupture of the parts would take place while there was still water on the crown-sheet, but at the time the water had become dangerously low.

It will be seen that the device not only effects the release of the pressure in the boiler, but the escaping steam is also directed upon the fire in the fire-box and deadens the same. The escaping steam would necessarily have considerable force and would thus scatter and partly, if not wholly, extinguish the fire and thus remove liability of further injury to the boiler.

In the modification of the device shown in Figure 3 the tube seven is closed at its upper end and the bell-shaped coupling is beaded on both sides of the crown-sheet. In this construction the softening of the parts and the pressure of the steam alone are relied upon to collapse the structure and cause the severance of the parts at their threaded junction with the sheet.

THE N. A. R. A. CONVENTION AT LOS ANGELES, CAL.

(*Continued from page* 16)

sunlight shines through the rifts in the clouds, rainbow colors are formed and Wonderland is seen."

Besides a view of this "World's Greatest Wonder," many things to please, entertain and edify the party will make their appearance at every other stopping point of the "Special," as scheduled in the itinerary of the trip, and one of the happiest times in the life of everyone in attendance may be confidently anticipated. At Los Angeles, City of the Angels, without even supposing that we are an angel band, a very feast of good things is being prepared for members of the convention and their families, and there all will be joyous and "Merry as a marriage bell." The program of the meeting will, I understand, be out soon.

Few members of the N. A. R. A. have ever visited California. Nothing in an educational way alone could be more profitable to them. Will they accept this most favorable opportunity? J. E. Gray.

(*To be continued.*)

MECHANICAL NOTES.

The Central of Georgia is adding a water works plant to its shops at Macon, Ga.

The Rutland Railroad is to equip its shops at Rutland, Vt., with electric power.

The Cincinnati, Bluffton & Chicago, has built shops and a round-house at Huntington, Ind.

The shops of the Boston & Maine at East Cambridge, Mass., were destroyed by fire early last month.

The cement round-house built by the Southern Pacific at Summit, Nev., was blown down by a storm on December 4th.

Short-term tenders are requested by the Central North Railway, Buenos Aires, Argentine, for eight locomotive boilers.

Information of an electric lighting enterprise in India is forwarded by Consul-General William H. Michael, of Calcutta.

The Delaware, Lackawanna & Western has placed orders for a number of large cranes for the company's shops at Scranton.

The National Lines of Mexico have completed new shops at Acambaro, Mex., and will install considerable new machinery the coming year.

The Great Northern proposes to use electric power in its Cascade tunnel in Washington, and has ordered four 100-ton electric locomotives.

The Western Allegheny will erect shops at some point on the system. The company's repairs have been done by contract heretofore.

The Santa Fe is to expend about $70,000 on shop improvements at Topeka, Kan. A portion of the plant was destroyed by fire November 28th.

The Gate City Terminal Co., of Altanta, Ga., is constructing a round-house at that point, also expending considerable money on other terminal improvements.

The Chambre de Commerce, Bordeaux, France, invites bids for the supply of seven hydraulic and five steam cranes, estimated to cost about $110,000.

John G. Yphantidis, Trebizond, Turkey in Asia, writes to the Manufacturers' Record that he would like to represent American manufacturers in Turkey.

It is stated that the Union Pacific will expend $1,000,000 on steel passenger cars to replace the wooden cars. It is understood that the company will build the cars itself.

The Spokane International has built new shops at East Spokane, Wash., which include a six-stall round-house, an office and storeroom 36 by 70 feet, and a building for the shops, 90 by 110 feet.

Bids will be received until January 10, 1908, by the Norwegian Government for the supply of 4,552 tons of steel rails for the State Railways. Address Minister of Commerce, Navigation and Industry, Christiania, Norway.

The Mexican "Diario Oficial" recently printed a copy of a decree authorizing the Empresa del Ferrocarril Industrial de Puebla to import into Mexico free of duty all necessary material for converting the line into electric traction.

M. E. Wells, assistant master mechanic of the Wabash, at Massillon, Ohio, is devoting special work in improving locomotive boiler performance, preventing feed water reaching the body of water in the boiler in a cold condition.

According to the London Chamber of Commerce Journal the time for the receipt of tenders for the supply to the Norwegian State railways of 4,552 tons of steel rails has been extended from November 13 to January 10, 1908.

The Santa Fe has about completed its new modern round-house at San Bernardino, Cal., and has arranged for the construction of new shops at that point. It is stated that about $1,500,000 will be expended on buildings and machinery. The main shop is to be 120 by 500 feet and modernly equipped.

Sealed tenders will be received for the construction of a wharf in Canada. Sealed tenders will be received until February 1, 1908, for work connected with the construction of a section of a canal, also in Canada. An official announcement giving further particulars may be obtained from the Bureau of Manufactures.

Aktiebolaget Linotol-Fabiangatan 27, Helsingfors, Finland, write to the Manufacturers' Record at Baltimore, as follows: "As we are making a specialty of concrete work and various kinds of building materials, also novelties of all kinds, we shall at any time be glad of your putting us in connection with firms whose goods would be worth handling."

An American consul in Canada furnishes the address of parties to whom applications should be made for supplying material to be used in the construction of a railroad to be undertaken in the spring of 1908. He also sends a lengthy list of new Canadian railway projects, a copy of the list being obtainable from the Bureau of Manufactures at Washington.

The Santa Fe has established a mechanical school at San Bernardino, Cal., for its employes. Report from there states that the school which recently opened, started off with a class of about thirty-five apprentices who will receive instruction in mechanical drawing and the reading of drawings four hours each week, that time being divided into classes of two hours twice a week. The Santa Fe Company will furnish each pupil complete sets of tools for mechanical drawing and after they have followed the instruction six months the tools become their property.

Consul-General Benjamin H. Ridgely furnishes the following report on a new Spanish composition for preserving steam boilers, which has just been placed upon the market at Barcelona: "The compound appears to be an improvement on all previous inventions. It is claimed that by adding a certain quantity of this preparation to the water tanks from which the boilers are fed, all impurities in the water, and matter that might adhere to the sides of the boiler, are at once precipitated leaving the water innocuous. Thus not only is the life and efficiency of the boiler increased, but a great economy in fuel is derived. The composition is in the form of a colorless and odorless liquid."

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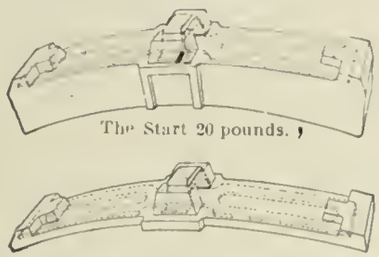

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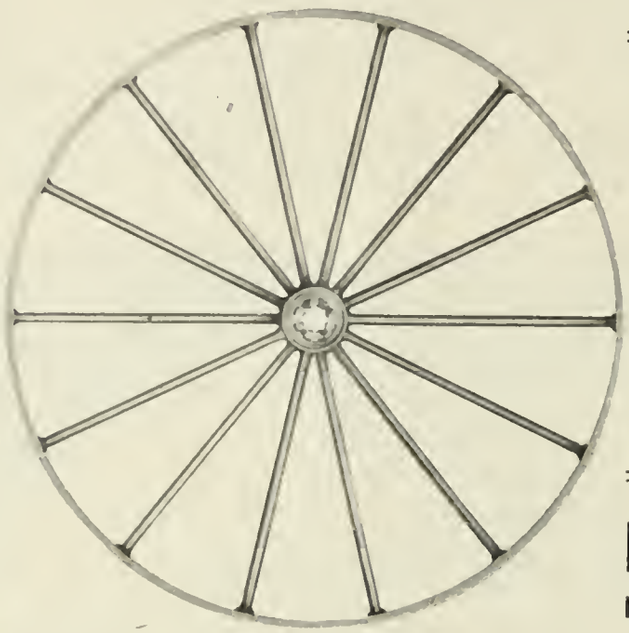

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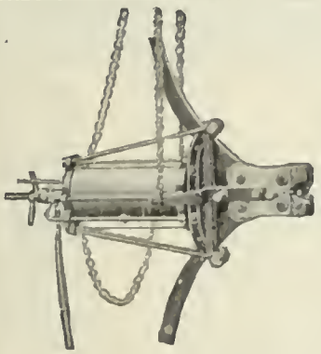

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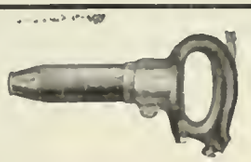

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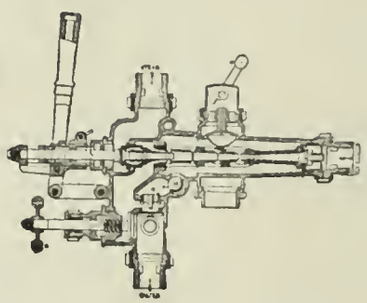

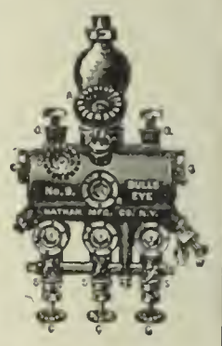

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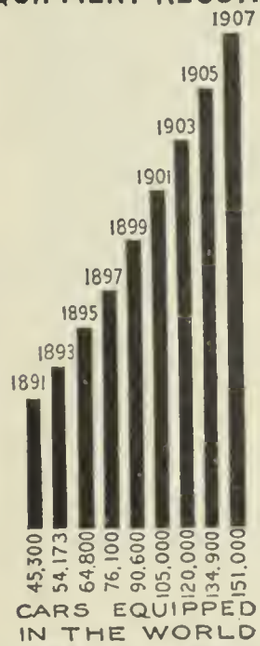

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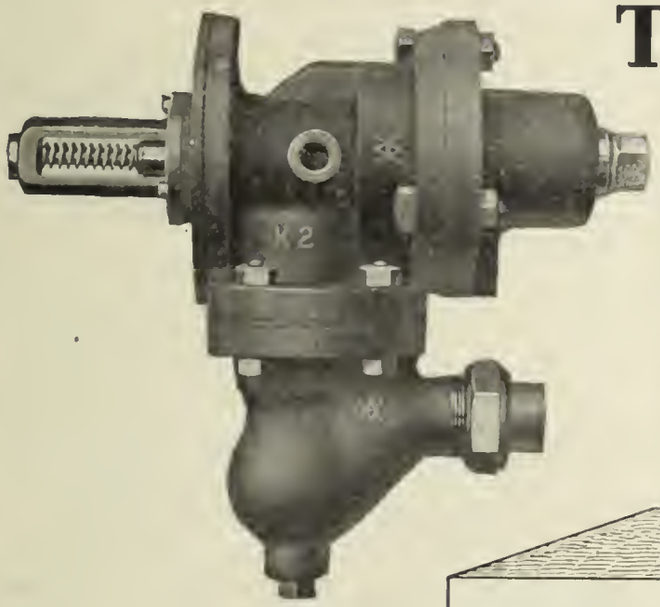

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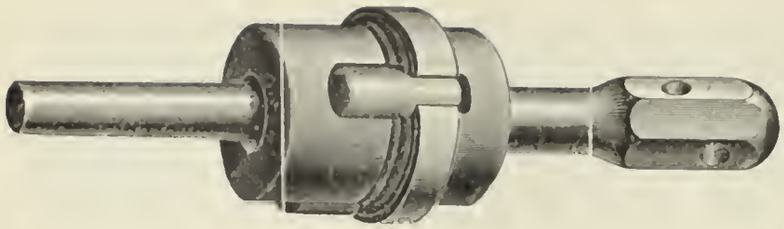

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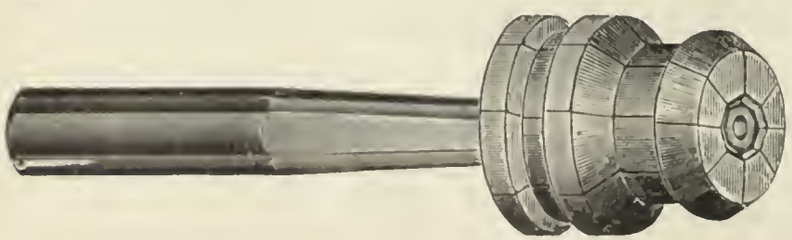

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W. E. FAITHORN - - - - - Business Manager
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A RAILWAY PRESIDENT'S LETTER TO EMPLOYES.

The letter below from the president of an important railway, carries with it the sentiments that make for harmony and co-operation between shipper and carrier, and for loyalty and faithful attention to their duties of all the various branches of railway employes. It is a happy omen for the future. The president's letter is as follows:

TO ALL EMPLOYES:

"I want you to know that it is the expressed desire and hope of Mr. ————, chairman of the board, and also my own, that during the new year a special effort be made by all the officers and employes of the company to meet all the fair demands of its patrons and of the public with reference to all branches of railroad service. So far as consistent with the proper conduct of the company's business, its patrons are entitled to be furnished promptly with all the information they may ask affecting their business relations, in whatever form, with the company, and to be treated with courtesy at all times and under all circumstances by its representatives, high and low. I believe this has been the policy in the past, but it is possible that more can be done in that direction than has been done, and every officer and employe is earnestly requested to consider carefully what this means on his part and to observe at all times the spirit of these suggestions, in whatever branch of the service he may be engaged.

"For example: Every department should see that letters from patrons are promptly and courteously answered, and that the subject matter of each letter is investigated without delay wherever an investigation is proper. Freight claims and other claims should be promptly acknowledged and definite results reached at the earliest practicable date. Applications for cars as well as all complaints concerning car distribution or car service should be dealt with so that every patron will be convinced that the company's representatives desire to do, and are to the extent of their ability, doing the right thing. If it is apparent that patrons do not appreciate the practical difficulties attending some particular service, every opportunity should be availed of to apprise them of such difficulties. If trains are late, patrons and their friends should be given full and true information on the subject when requested, and in a manner calculated to please and satisfy. There should be no indifference or mystery about railroad operations; the public naturally rebels against either, as well as against uncertainty in information concerning train movements, etc.

"The above are only a few of the subjects that might be mentioned as illustrating the general idea above expressed. Let us all unite in removing altogether the once prevalent notion that a railroad is run on the 'public-be-damned' plan."

Yours truly,

————. President,

B. A. ECKHART, RAILWAY AND WAREHOUSE COMMISSIONER.

Governor Charles Deneen, in the early part of his assuming the duties of chief executive of Illinois, appointed B. A. Eckhart president of the West Park Board in Chicago, and following this selection there has been a housecleaning and the abolition of useless expenses that have given the president of the park board

a reputation for business management Subsequent to this appointment the governor of Illinois chose Mr. Eckhart for the Railway and Warehouse Commission, and it is confidently believed that his counsel in that important body will mean the best results. This feeling is properly based upon the new incumbent's long experience in commercial life, and the further fact that the wide territory his business reaches will certainly have brought about breadth of views in relation to railway regulation, both in service and in the question of rates.

The commissioner will undoubtedly look upon railway properties in the light of both public and private interests, with no purpose to unfairly subordinate the latter element. He will, without question, be broad enough to see that intrastate rates when they become a demoralizing factor in interstate tariffs are confusing the situation with benefit to no one. Uniformity means generally equal conditions in all substantially similar circumstances and not preferential rates for territory, beyond an imaginary line. He must conclude that sections cannot prosper locally to the injury of other sections without some laws of reprisal resulting, and will, we believe, work for general uniformity. This must come about best by the states acting in harmony, not in conflict, with the Federal government. Railway men will welcome official appointments when there is a prospect that the commissioner will try to arrive at the reasonableness of things without bias as to political effect. In the present instance we anticipate just such a course.

ST. JOSEPH, MO., LETTER TO THE JOURNAL.

St. Joseph, Mo., January 7, 1908.

Editor Railway Journal:

I was much interested in your ingenious article in Railway Journal under the heading "If Such an Investigation Were Held," yet I cannot subscribe to the doctrine mentioned by one of your experts, i. e., "Competition for business should be between the producers affected only by geographical nearness to markets and their ability to manufacture cheaply and not by cost of transportation" While the chief factor in controlling business is nearness to the market and cheapness of manufacture, yet the cost of transportation must of necessity cut some important figure. The isolation of markets to producers near by, curtails that market and limits the movement of goods Railroad freight earnings are made up in a variety of ways, for instance, through business as well as local. Sometimes very low through rates to reach a distant market may not in themselves be very remunerative, yet the volume of the traffic tends to decrease the general cost of handling, and in this way the business is valuable.

Boston has always been a great wool market, New York and Philadelphia a good market for dairy products. If they were confined by their geographical locations to New England producers, or producers in the eastern seaboard, it would work a hardship on themselves and on the western producers as well as on the great railroads in the West. The railroads perform a great public service in making it possible for a producer a thousand miles or more from a great market to lay his goods down there in competition with the local producer. The low, cheap through rates is the "factor" that makes it possible. Then again, the western grower does not want to confine himself to the primitive method of living which was formerly necessary, and therefore buys the best of things manufactured in the East and again the railroads make a cheap through rate, and this exchange of commodities goes on all over the country to the benefit of all, especially to the advantage of the transportation companies, and the real factor is the cheapness of transportation.

We want this exchange of commodities. It is good for the country. It broadens and civilizes and brings us closer together. No railroad company properly, and I might say profitably, conducted can afford to restrict the trade of those along its line, but must find a market for the raw products, and manufactured articles along its rails. The price at the central market governs. The cost of transportation with a fair profit comes out, and if there is a reasonable profit left to the producers the goods are shipped; if not there is a loss to the producer of the surplus production and a loss to the railroads in not getting the business to move. There is a competition of markets which is very important, and this is not regulated by the railroads, yet it is sometimes affected by reason of the law of supply and demand, which the railroads as the principal carriers are a chief actor.

R. M. Bachellor.

The above communication is a very interesting comment, and follows along fair and reasonable lines. Rates, as stated by the writer, ought to be such as to meet the requirements of general and regular distribution. There is no contention upon our part against low through rates to provide this necessary facility.

Economic conditions in the Far West as to grazing and food supply have made that section the greatest source of meat, dairy and other products complementary thereto. Nevertheless, lower rate bases from other regions, New England and the Middle States, have lost this form of employment except in a narrow sense, and this is because of the lessened cost of production in the West. We have qualified our rate comments by the statement that the basis is not presumably too high unless general consumption is interrupted, and we still believe that the nearness to market and the cost of production ought to control without much regard to transportation. If transportation rates are generally equal, ought not the benefit of nearness to consumer to accrue to the producer so located? If a product is not possible of giving a large source of supply, then the question of a rate to furnish general movement is specific and requires treatment by itself.

There are often many economic features permitting the longest haul on raw material for factories to be the most profitable, and so long as the rates are open to all in the same line, no harm is done. The fact, it seems to us, remains then, that the economic feature in the exchange of commodities ought to be based upon rate stability, and not made confusing by uncertain charges for moving. Be the rate high or low, the competition properly is between the commercial and producing interests upon a known rate basis.

The Interstate Commerce Commission has ruled that roads in publishing tariffs must make same simple and concise; that is, all phrases must be left out that are not easily understood by the public. It has been customary for a number of years for roads to have a notice in each freight and passenger station stating that published tariffs are on file in that station for the public to refer to at any time; but the average layman is not familiar with printed tariffs, and were he to refer to it casually, he would be as far from knowing its contents as he was before he looked at them. It is the purpose of the Commission that the statements of rates and fares shall be affirmative and negative.

IMPORTANT DECISIONS OF THE INTERSTATE COMMERCE COMMISSION.

RAILROAD COMMISSION OF OREGON

VS.

CHICAGO & ALTON R. R. ET AL.

DECIDED DECEMBER 9, 1907.

1. Rates on alcohol, all kinds, from Chicago and from Missouri River common points in Oregon, are 85 cents per 100 pounds in carload lots and $1.25 per 100 pounds in less than carload lots. These rates are less than the rates from same points of origin on petroleum products, whisky or paint.

2. Complainant asks for reduction in the rates on denatured alcohol. The record shows that denatured alcohol is manufactured in California and is sold in the north Pacific coast cities at a price which could be met by the Eastern product only by reducing the transportation charges to nothing. An effort to place denatured alcohol upon a parity with proof spirits would lead either to a large increase in the charges on the proof spirits or a practical wiping out of the charges on the denatured article. Such increase in the charges on the proof spirits would probably render futile all effort to compete with the California product.

3. Rates complained of are not shown to be unreasonable *per se*, unduly discriminatory, or unjustly prejudicial. Complaint dismissed.

In the foregoing the anticipation seems warranted that some very reasonable facts must be shown for cause to change rate bases. Paragraph 3 apparently cites what they are.

MEMPHIS FREIGHT BUREAU

VS.

FORT SMITH & WESTERN R. R. ET AL.

DECIDED DECEMBER 9, 1907.

1. Complaint alleges unreasonable through rates on cotton seed from points on Fort Smith & Western Railroad to Memphis, Tenn. Class A rates then in force were admitted to be unreasonable, and defendant, by leave, amended its answer by stating that it has established through rates equal to the sums of the local rates of the several carriers, based on Fort Smith. Later and before the case had been submitted, defendant Fort Smith & Western Railroad increased its local rates, and still later, and before decision had been rendered, filed a tariff of through rates carrying corresponding increases in rates.

2. Defendant Fort Smith & Western Railroad is a comparatively new road, which runs through a comparatively undeveloped territory. It has been operated at a loss each year, and has not sufficient equipment to warrant it in permitting its cars to go off its line with through shipments. It declares that it is and has been willing to establish through route and joint rates to Memphis if it could have divisions of such rates equal to its local rates and could secure cars for such shipments from connecting carriers. It has secured concurrence from two connecting carriers in joint tariff which provides for loading in connecting carriers' cars.

3. A carrier's first and paramount duty to the shipping public is to make its entire equipment do its utmost in serving the shippers along its line; a carrier serving and dependent upon a new and undeveloped territory, and unable to earn any profit for its owners, may charge higher rates than would be reasonable under different conditions, and if carrier that forms part of a through route proposes to require the transfer of freight from one car to another at any junction point it must specify in the tariff the point at which transfer will be made and the charge therefor.

4. The increases in the through rates made since defendant's amended answer to this complaint was filed are unreasonable and unjust. Through route and joint rates not in excess of the sums of the local rates which were in effect when such amended answer was made are ordered.

The conclusions of the Commission in this case express clearly what it considers the paramount obligation of carrier to shipper. There are certain conditions, too, it says, where higher rates are justified by circumstances rather than lower ones. The conclusion that these must not exceed local rates as proportions of through quotations, it seems might be qualified thus: If the local rate is in one state for a particular portion of the route and is unfairly low through state enactments, where it becomes a part of a through interstate rate it may exceed the local, unless oppressive.

HOLCOMB-HAYES COMPANY

VS.

ILLINOIS CENTRAL R. R. ET AL.

DECIDED DECEMBER 9, 1907.

1. The Commission does not approve the practice whereby a carrier puts in rates with a clause under which they expire after a short time, for the purpose of enabling the Commission to do justice in a particular case. In order to prevent the discriminations which the act was intended to defeat, the Commission, in such cases, will hereafter require the rates to remain in effect for a definite period of time to be designated in the order.

2. Complainant is entitled to recover from defendants the sum of $3,071,156, as reparation for unjust and unreasonable charges on specified shipments of cross-ties made under the rates complained of in this case.

The Commission in the above makes clear its unwillingness to encourage any "enabling" tariffs for the purpose of relief in specific cases.

CHICAGO & MILWAUKEE ELECTRIC R. R. CO.

VS.

ILLINOIS CENTRAL R. R. ET AL.

DECIDED DECEMBER 2, 1907.

1. Complainant demands through routes and general class and commodity rates on movements in both directions between points on its own line and points on the lines of the defendants, but it appeared from the record in the case that the shipping community described therein was already supplied with a reasonable or satisfactory through route. For this reason the complaint should be dismissed.

2. The proviso in Section 15 of the amended law limiting the power of the Commission to establish through routes and joint rates to cases where "no reasonable or satisfactory through route exists" was not intended to afford a means by which new lines, with the aid of the Commission, may profitably force their way into shipping districts built up and already well served by older lines, and thus seize and divide with the latter such

traffic as may be offered for movement. The purpose of the clause was to afford relief to shipping communities, and not to aid carriers to acquire strategic advantages in their contests with one another.

3. The act makes no distinction between railroads that are operated by electricity and those that use steam locomotives; both are subject to the act when engaged in interstate transportation and are entitled to equal consideration in any controversy before the Commission.

The position taken by the Commission in the preceding case is clearly right and based upon equity. Where no betterment of facilities inures to the shipper the carriers' investment ought not to be even partially confiscated by enforced division of traffic with some other line.

CALIFORNIA FRUIT GROWERS' EXCHANGE ET AL.

VS.

SOUTHERN PACIFIC COMPANY,

DECIDED DECEMBER 14, 1907.

Complainants attack the reasonableness of a regulation of the Southern Pacific Company to the effect that, in time of car shortage cars will be furnished to the various shippers in proportion to the amount of fruit picked and actually in the packing houses at the time of the demand for cars. Prior to April, 1907, cars were distributed in proportion to the season's business done by the various shippers. This so-called "crop-holding rule" is still in force over the A. T. & S. F. R'y, but in the case of the Southern Pacific Company, has been displaced by the "house rule," to which objection is taken. Held, that the situation cannot be adequately covered by any fixed, inelastic regulation. Although the "crop-holding rule" appears to work more perfectly to the satisfaction of shippers and carriers, nevertheless, the "house rule" does not appear to be unduly discriminatory. Complaint dismissed.

In the above case the Commission has very properly, we think, refused to establish a rule of inflexibility. As no undue advantage seems to have been the result, the railway is clearly and fairly entitled to an option in applying the regulations.

JOSEPH MITCHELL CHAPPLE

EDITOR OF THE NATIONAL MAGAZINE, ESTABLISHED AFTER A CONFERENCE WITH AND AT THE SUGGESTION OF PRESIDENT MCKINLEY; AN EDITOR WHO BELIEVES IN FAIR TREATMENT FOR TRANSPORTATION COMPANIES.

Joseph Mitchell Chapple, editor of the National Magazine of Boston, is the son of William and Louisa M. Chapple, and was born at La Porte City, Iowa. He is of English ancestry, his father having been born at Walton-on-Thames, England. His occupation was that of wheelwright and merchant. One of Mr. Chapple's ancestors was Joseph Crockett of Virginia, who was the founder of the City of Lexington, Ky.

Young Chapple's special interests in childhood were toward music, printing and literary work. In his youth he worked at various times on a farm, as an elevator boy, janitor, messenger and as a printer's devil. His mother's influence was strong with all her children, encouraging ambition to progress in the world and to use every honest effort towards bettering their circumstances. In his energetic attempts to secure an education, Mr. Chapple worked two terms at college as a janitor in one of the buildings. He is a member of the Masonic fraternity, Ancient and Honorable Artillery, Royal Arcanum and the Elks. In politics he is a Republican and in religion a Methodist. From a barefoot, shock-haired boy, he has in a very short time, when considering his beginning, attained a recognized position among the prominent men of this country. This is because he is of the type of progressive Americans who really accomplish things.

President McKinley is responsible for his entry into magazine work. Mr. Chapple called to see the President about a consulship, for which position he felt that he had the lines well drawn, and Major McKinley, knowing his ambitions in the line of literature suggested in preference to political life he at once begin to edit a magazine and call it "The National." His advice was given in a fatherly way and the recipient realized that the President's keen perceptions had foreseen the possibilities of such a publication. His future was decided and subsequently all his energies were steadfastly in the path recommended. While the way was very rough for a time, the editor is now on the sunny side of the road and bears most affectionately in mind the advice given by the Nation's former chief. The magazine today has a subscription list of 229,000, and this means among regular readers, for it does not exert efforts to secure the attention of the transient reader who buys an occasional copy of a magazine at the news stand.

JOSEPH MITCHELL CHAPPLE.

Joe Chapple, as he is best known, attended college at Mount Vernon, Iowa, and after leaving was in newspaper work for several years. In 1896 he made a tour of Europe and interviewed Ruskin, Gladstone, Bismark and Verdi, and wrote two novels of American life—one of these was "The Minor Chord" and the other "Boss Bart, Politician," and both publications met with a ready sale in this country and in Europe. In 1897 The Bostonian, a magazine of uncertain fortunes, was taken charge of by Mr. Chapple and renamed the National Magazine, and this is the popular and growing publication he is the editor of today.

I have recently talked with this genial and clever man and can report with pleasure to our readers that Mr. Chapple is one of the few instances in broad public life who realizes properly the value of the railway as an influential factor in the permanent growth of the country, and who can see good in the purposes of many conscientious men in charge of our transportation interests. He is not a friend of reckless financing, and be-

lieves sincerely in proper regulation, but he is not without a keen perception of the scope wherein railways ought to operate without restriction.

It is gratifying to feel that some of our popular issues can go to the people as critics without forgetting that there are reasons for praise. We are not soliciting for the National Magazine in this comment, nor are we paid for what we say. It is a genuine case of merit in our opinion. Western people ought to be interested in a publication whose editor comes from among them and can know and appreciate their conditions.

Mr. Chapple was married in 1886 to Annie F. Ryder of Grand Rapids, N. D., and had one son, who only lived two years. His favorite recreations are music and baseball. I have seen few men who have seemed more indefatigable in their work, but nature has given the industrious editor a physique which, with proper care, ought to last a century. W. B. B.

RAILS.

An examination into the forms and performances of the prevailing railway track gives reason for thinking that less scientific progress has been made here than in any other branch of railway operation. This seems somewhat strange because it is one of the two departments which deals with things wholly physical and, therefore, most appropriate to scientific investigation and results. In the mere history of rails there is enough of matter to form a considerable book and at the present time and within the last few months, the technical papers have been deluged with drop tests, chemistry, moduli, opinions, formulæ, neutral axes, crimination and recrimination which apparently have led to nothing but a desire on the part of the railways for as much discard from the ingot as can be secured, and a resolution on the part of the manufacturers to make as little discard as possible. Although this particular factor in rail production is extremely important, merely to end in the same discussion with which it began seems to be a very small mouse from a very large mountain.

Many railway engineers will find themselves confused by the terms of this controversy as to shapes, constituents and methods of rolling, but there are others who are fortunate enough to have become acquainted with some of the splendid English steel rails which were sent to this country in the later 60's and early 70's. This material behaved so uniformly well that one would have expected great regularity in the elements of which it was made. On the contrary, it showed surprising variations in carbon as well as in the more injurious constituents. In a particular instance, that of some John Brown steel of 60-pound section, pieces taken from adjoining rails in the track varied so much as to seem not to have come from the same mill. Yet the number of broken rails discovered during its life was so small as scarcely to constitute a percentage; and it was taken from the track solely because the head became so thin under an exceptionally heavy traffic that it seemed inadvisable to retain it in service. When disposed of, it was used for many purposes, the most singular of which, we believe, was the successful manufacture of track tools such as spike-mauls, picks and chisels. It was, compared to the miserable stuff turned out today, as a Jurgenson is to a Waterbury watch, and there was nothing occult about the processes of manufacture in producing it. The one was rolled with infinite pains by experienced workmen according to practices which are justified by hundreds of years of effort. The other, as epigrammatically stated by D. J. Whittemore is "squirted" through the rolls, apparently with little regard for anything but tonnage.

As the weight of rolling stock and the speed of trains increase it is to be expected that the demands upon all parts of the track will become more difficult to fulfill and it must be taken as an extremely serious condition when the railways of this country now find it nearly impossible to purchase a rail in which any engineer of experience will feel perfect confidence. It is not difficult to explain the reason why British rails have been sold at little more than two-thirds the cost of American rails at the mills in this country, nor why at the same time their quality is so much higher. Were it possible for us to secure any competition in quality it would be but a short time before the complaints of American rails would almost die out. But until this competition can be secured most of the discussion which now goes on is futile and beside the point. No matter of what constituents American rails are made, they will not be a safe support for our present equipment until the rolling is properly performed; the rolling cannot be properly performed by the present methods; and the present methods will not be modified materially until some new influence shall come into existence.

UNSOPHISTICATED LINE AGENT REQUESTS ADDITIONAL VESSEL.

Some years ago a line representative in Minneapolis found himself, after months of leisure, suddenly in shape to handle export trade by way of Philadelphia. With a good ocean rate and a differential route he went hot-foot for the business, and many of the big millers who knew his consistent and persistent efforts to get shipments, gave him the glad hand. The steamship company was to put some extra vessels in the trade, and it was only a short time, much to its surprise, when the capacity of the first one was exhausted. The steamship manager wrote saying another vessel could be placed in the market if advisable, requesting an opinion about it. The general agent of the Fast Freight Line was away and the local line man, full of enthusiasm, pondered only a few moments before he replied: "Put on your boat." When the general agent got home consternation reigned and the office was scandalized. It was thought almost insanity to take a chance like this for the freight; only ignorance and stupidity as to vessel capacity could excuse such a foolish move. The line man was looked upon as a real cabbage garden. He got the sailing date, however, went energetically after contracts and had his full proportion of tonnage booked, and, in addition, booked heavy space via Boston, to the surprise of the foreign agent there, who thought the line was dead. In the season's round-up, one of the Lake Ferry lines had some four hundred cars of flour, when the boats laid up for the winter, that were taken East all-rail. This, I believe, still stands as the record for export movement over any one route. The man who got the flour is now a railway officer and frequently refers with amusement to the time when he ordered out an ocean vessel without conference with his superior officers, and was only saved from misfortune by being able to deliver the goods.

Rudolph Kleybolte & Co. of New York, Chicago and Cincinnati have lately issued a very complete pamphlet covering the rules and regulations governing equipment bonds. The nature of this class of securities, the contracts under which their flotation is assumed, the methods of keeping track of cars, per diem rules affecting the movements and other valuable information have been given in concise form. The little book is of much interest to the laymen and also to possible investors. It is a form of publicity in line with the trend of the times, for it apparently has nothing to conceal, and furnishes much that is new to the public.

The U. S. Supreme Court ruled last month, that a fast mail train, when engaged in Interstate Commerce, cannot be forced to stop at towns not on the schedule of such trains.

The New York Railway Club has perfected a permanent organization with the following officers: Elbert H. Gary, president; F. D. Underwood, vice-president, and C. W. King, secretary and treasurer; W. G. McAdoo, Walter C. Oakman, W. G. Besler, W. H. Marshall and Frederic B. Jennings, house committee. The club membership is limited to five hundred and is representative of railroad, banking and commercial interests. The new quarters will be opened next May.

HOSTS TO THE NATIONAL ASSOCIATION OF RAILWAY AGENTS.

W. J. Black, passenger traffic manager of the Santa Fe System, will in a few days after our comments appear be host to the National Association of Railway Agents, who take his route to the convention in California. This active group of keen and observing men will not travel listlessly over the Santa Fe from Chicago to the Pacific Ocean—everything of interest will be carefully and intelligently remembered and most certainly made use of in their future solicitation for western business.

There is much of interest in the country this railway traverses in the way of national wonders, in its great development and in the vast expanse still to be a

W. J. Black.

part of industrial transformation. As the guests of the Santa Fe, the visitors to the West will be given every chance to see all possible attractions consistent with the time of their itinerary.

The return trip by way of the Southern Pacific System places the agents in the care of Charles S. Fee, passenger traffic manager of that company. In taking this route the travelers will be further interested and, we believe, astounded at the enormous scope of our own country, and the territory covered by the use of only two lines. After passing through a beautiful and fertile portion of the West they emerge into a rather barren region, most impressive by its extent, yet they are soon in El Paso, a thriving and up-to-date city. From thence to New Orleans the route carries them through the Lone

Charles S. Fee.

Star Empire of Texas, showing the growth of this section in every form, and passing through the cotton and

S. G. Hatch.

sugar country of Louisiana, they are soon in the Crescent City. This southern metropolis is a charming combination of the romance of the past with the progress of today. When the N. A. R. A. has been locally shown the sights through the courtesy of J. W. Cousins and others of the New Orleans fraternity, their care and comfort falls to the lot of S. G. Hatch, the general passenger agent of the Illinois Central Road. A continuation of the courtesies they will have received prior to this is certain, and they will begin the "last lap" for home, weary and happy with the pleasures of a trip that will long remain in memory as something to recall and enjoy the recollection of it.

The passenger men we mention as their hosts will have been glad to give tangible proof of their hospitality while the recipients of it will have a sincere appreciation of all the courtesies, and assign to each host his abundant measure. W. B. B.

furnishing full information as to the places desirable to visit, and explaining the growth in popularity of vacations in the North. We publish this for two reasons. The first is: We believe in many cases it means health, renewed vigor and longer life. The second is: Vacations of the sort indicated mean a better acquaintance among the guests, less formality and a lessening of conventions in social life, to the degree of permitting some genuine knowledge of each other. This makes possible the forming of congenial relations and real friendships among people of different sections that are likely to have some permanent value. Acquaintance has much to do with disarming local prejudice.

As a vacation season, New England's usefulness to the body politic is by no means limited to the summer season.

Strange as it may seem to those accustomed to think only of the Sunny South in this connection, New England is fast taking rank as one of the country's most popular winter-vacation resorts.

Winter Scene in New England—Boston & Maine Railroad.

THE ENCHANTED AND ROMANTIC VACATION LAND OF AMERICA—WINTER PILGRIMAGE TO NORTHERN NEW ENGLAND.

Charles M. Burl, general passenger agent of the Boston & Maine Railroad, has a proper appreciation of the American wish for variety in the form of recreation the purveyor must supply Not every class seeks the balmy South when winter snows blanket the mountains of the northern east, but, on the contrary, the very circumstances which call the lover of ease to the land of the magnolia have "the call of the wild" for the robust and the daring. Under the title above the Boston & Maine Railroad issues a breezy little pamphlet as a compliment to "The Appalachian Mountain Club,"

A few years ago the members of the snowshoe section of The Appalachian Mountain Club were almost alone among those who ventured from the cities up among the snow-clad hills and valleys of New Hampshire and Vermont during the winter time. Nowadays, hundreds of business and professional men and women make it a regular practice to supplement their summer outing with a briefer one to the same region during the colder months of the year.

This new, and perhaps somewhat unexpected, extension of New England's vacation season has been brought about largely by reason of the fact that people are beginning to take a saner view of winter-time country life, and have discovered that it is not the cheerless and forbidding existence that it has been popularly depicted.

More than that, they have discovered that to the average constitution a sojourn in the dry, cold and exhilarating atmosphere of the New England highlands is far more beneficial than the enervating climate of some of the sub-tropical winter resorts that are so much in the public eye just now.

This is particularly applicable to the case of those who have only a few weeks, at most, to give up to a winter rest, and who are decidedly "taking chances" if they spend a brief period in a warm country and then return to their northern home before the season of blizzards and "cold waves" has ended

So dangerous are these abrupt climatic changes apt to be, that many physicians are nowadays advising their run-down patients to seek the quiet precincts and stimulating air of the New England highlands, rather than to run the risk inseparable from a brief winter sojourn in the South.

In the Hill-Country with Snow-shoes.

So many are following this excellent advice, and so many others, conscious of the need of a respite from business cares, or imbued with the desire to enjoy Nature in her most peaceful mood, are latterly getting into the habit of taking a winter trip to the country, that the "winter vacation" of the North has at last come to be a fixed institution.

The White Mountain region possesses the largest number of such resorts in the New England territory. There are a dozen or more famous summer centers in that section where the winter guest is now made comfortable, and in some of them more than one hotal has adopted the "all-the-year-round" motto.

At Fabyan, Bretton Woods, Plymouth, Franconia, Gorham, North Conway, Jackson, Berlin, Jefferson, Kearsarge Village, Randolph, Littleton, Lancaster, Bethlehem, and other places in the New Hampshire hill country, one may nowadays find rest and good cheer and all the typical outdoor sports and pastimes The enterprising proprietors of some of these winter hotels have even provided special toboggan slides for the entertainment of their guests, and this characteristic Canadian pastime, together with snowshoeing, skiing, sleighing, skating and tramping, is to be enjoyed nearly everywhere.

In almost any part of this winter-vacation section there are mountains of 3,000 to 6,000 feet in altitude to be climbed by the more hardy visitors, and an authority on this delightful and healthful exercise has said that "winter mountain-climbing in New England is extremely invigorating, seldom dangerous and always interesting."

In the lower altitudes of the New Hampshire country, notably at Wolfeboro and other places around the shores of Lake Winnipesaukee, there are also winter hotels open, and ice yachting and fishing may be enjoyed there.

Vermont has its own resorts, the most popular one being Woodstock, where it has been difficult to make the hotel capacity keep pace with the demands.

It is really quite surprising with what degree of comfort one can travel to and from these northern winter resorts. As to the comforts provided indoors at the New England winter hotels, they are in no sense inferior to those enjoyed by visitors who register at them as summer guests.

Hot water or steam heat, reinforced by open fireplaces, warm bedding and a menu suited to the requirements of mid-winter temperature, are a part of the service The hotels accommodate from twenty-five to two hundred, and rates are from $2 00 a day upward The winter social life at some of the larger houses is even more enjoyable than that of the summer season, for the reason that the guests are necessarily thrown more in one another's company,

December, January and February are, naturally, the favorite winter-vacation months, but there are some who take their cold weather outings in November and March. The fair sex is largely represented, and women are among the most ardent of the mountain-climbers and snowshoers.

Believing strongly in the future of this winter-vacation business, the Boston & Maine Railroad has from the first taken an important part in its development, and is doing everything in its power to facilitate the transportation of those who wish to enjoy such an outing. On application, the Passenger Department will gladly furnish any desired information regarding these New England and Canadian winter resorts and the best means of reaching them.

FROM MY OBSERVATION CAR.

T. C. Peck, general passenger agent of the San Pedro, Los Angeles & Salt Lake Railway, whose picture is below, ought at least to be known by sight before the N. A. R. A. meets in convention at Los Angeles, because he is likely to be encountered many times when the association is in the Golden West. Remember while reading his Christmas greeting, that he has a first-class route between Salt Lake and California which, while new, is solid and substantial with all the conveniences and comforts of the older lines. Mr. Peck is on the staff of General Traffic Manager Wann, an old Chicago resident, who has never forgotten how to treat the railway fraternity nor the traveling public.

J. C. Peck G. P. A.
Salt Lake Route

From the Land of Sunshine
Flowers and Fruit
That is reached Direct by the
Salt Lake Route
I send You Greetings
And Holiday Cheer
For a Merry Christmas
And Happy New Year.

The newly organized Transportation Club of Cincinnati, has chosen the following officers for the ensuing year: President, A. D. McLeod, assistant general freight agent, C., H. & D.; vice-presidents, Fred D. Bush, division passenger agent, L. & N., and F. A Healy, secretary and treasurer, Ohio Electric Ry.; secretary, George L. Williams, commercial agent, C., M. & St. P.; treasurer, Norman M. Breeze, general agent, C. & N.-W.

PERSONAL

EXECUTIVE, OPERATING AND PURCHASING.

Thos. Fitzgerald has resigned as genl. mgr. of the B. & O

J. Kinucan has been made supt. terms. of the Santa Fe at San Francisco.

H. H. Woodman has been made purch. agt. of the Mo. So. at Leeper, Mo.

Henry Martin has been made inspector of transp. of the I. & G. N. at Mart, Tex.

H. H. White has been made trn. mstr. of the El Paso & S. W. at Tucumcari, N. M.

John D. Mellville has been made asst. div. supt. of the Mex Cent. at Cardenas, Mex.

E. Hartenstien has been appointed div. supt. of the Ann Arbor at Owosso, Mich.

B. D. Folwell has been made purch. agt. of the Buffalo & Susquehanna at Buffalo, N. Y.

C. L. Nichols has been appointed div. supt. of the Northern Pacific at Livingston, Mont.

W. G. Brimson, genl. mgr. of the Quincy, Omaha & Kansas City, has been chosen vice-pres. also.

W. C. Atherton, genl. strkpr. of the Pere Marquette, has been appointed purch. agt. of that road.

H. S. Noble has been appointed asst. genl. mgr. of the Mutual Transit Company at Buffalo, N. Y.

W. C. Koch has been made div. supt. of the M. K. & T. at Denison, Tex., vice **C. H. Scott,** resigned.

J. L. Phillips is pres. and **Z. Middlebrooks** is gen. mgr. of the Florida Central, offices at Thomasville, Ga.

J. F. Clement has been appointed div. supt. of the Toledo, St. Louis & Western at Frankfort, Ind.

Wm. Cross has resigned as asst. to the second vice-pres. of the Can. Pac. and retired from active service.

E. B. Boyd has been made asst. to the vice-pres., with traffic duties, of the Gould lines, office at Chicago.

J. S. McGuire has resigned as trn. mstr. of the Ann Arbor at Owosso, Mich., and the office is abolished.

J. M. Horgan, trn. mstr. of the Lake Shore at Ashtabula, Ohio, has been appointed asst. div. supt. at that point.

S. M. Felton, pres. of the Mex. Cent., has been made pres. also of the Mex. Amer. S. S. Co., office at Mexico City.

W. H. Farrell, act. supt. of terms. of the Grand Trunk at Toronto, Ont., has been appointed supt. of terms. at that point.

Newman Kline has been made div. supt. of the Nor. Pac. at Minneapolis, Minn., vice **M. M. Fowler,** assigned to other duties.

E. C. Duncan was on January 15th made receiver of the S. A. L. with **Messrs. Williams** and **Warfield;** office at Raleigh, N. C.

C. B. Cox has been made asst. genl. mgr. of the Pan American Ry., vice **H. A. McCullough,** resigned to enter service in Peru.

Leroy Trice, formerly vice-pres. and genl. mgr. of the I. & G. N., has been chosen pres. of the First National Bank at Longview, Tex.

J. C. Morrison has been made supt. of the commissary dept. of the Harriman Lines in Oregon, office at Portland, vice **R. Pryer,** resigned.

J. R. Dillon, asst. genl. frt. agt. of the Santa Fe, has been appointed supt of terms. of the Houston Belt & Terminal Company of Houston, Tex.

C. C. Cornell has been made trn. mstr. of the Union Pacific at Grand Island, Neb. **A. Taylor** has resigned as asst. div. supt. at that point.

W. B. Barclay has been made genl. mgr. of the Halifax & S. W., the Can. Nor. Ont., the Can. Nor. Que., office at Montreal, vice **W. C. Spencer,** resigned.

C. T. Banks has been made div. supt. of the C. G. W. at Red Wing, Minn., vice **C. S. Weston,** made div. supt. at Des Moines, Iowa, vice **C. L. Nichols,** resigned.

W. J. Henry has been made insp. of trans. of the C. N. O. & T. P. and the A. G. S. at Cincinnati, Ohio, vice **W. W. McCormick,** assigned to other duties.

A. Ross has been made strkpr. of the Erie at Jersey City, N. J., and **R. O. Blenis** is strkpr. at Nor. Patterson, N. J., vice **M. J. Collins,** assigned to other duties.

W. A. Garrett, formerly pres. of the S. A. L., has been made chf. exec. officer for the receivers. **S. L. Kamps** has been made asst. to **Mr. Garrett;** offices at Norfolk, Va.

E. C. Lilley, trn. mstr. of the Santa Fe at Temple, Tex., has his authority extended over the San Angelo branch also, vice **A. J. Johnson,** assigned to other duties at Temple.

F. T. Bowie has been made asst. to the vice-pres. of the Missouri & Northern Arkansas, office at Eureka Springs, Ark., and **R. W. Andrews** has been made industrial agent.

W. T. Schaff has been made trn. mstr. of the Big Four at Cleveland, Ohio. **T. J. Hayes** becomes trn. mstr. at Indianapolis, and **J. E. Hiatt** has been made trn. mstr. at Danville, Ill.

E. L. Wise, asst. trn. mstr. of the L. & N. at Earlington, Ky., has been appointed trn. mstr. at that place, vice **M. Seargeant,** resigned. **W. K. Griffin** succeeds **Mr. Wise** as asst. trn. mstr.

P. H. Houlihan, genl. supt. of the Clover Leaf, has been made genl. supt. of the C. & A. also, vice **C. A. Goodnow,** resigned as genl. mgr. to accept service with a street car company of Chicago.

B. C. Cooper, heretofore genl. yard mstr. and asst. trn. mstr. of the Vandalia at East St. Louis, Ill., has been appointed trn. mstr. and road fore. of engines at Decatur, Ill., vice **W. K. Larr,** resigned.

H. B. Ledyard of the Mich. Cent., has been made pres. of the Toledo Terminal. **Wm. Cotter** of the Pree Marquette is vice-pres., **T. B. Fogg,** genl. mgr. and **F. W. Stevens,** temporary secty.; offices at Toledo, Ohio.

C. H. Basler, having resigned as purch. agt. of the C. P. & St. L., that title is abolished and **E. A. Williams,** genl. pass. and tckt. agt., in addition to his other duties, will have charge of purchases; office at St. Louis.

The following appointments are announced on the Chesapeake & Ohio: **J. W. Knapp,** genl. div. supt. at Richmond, Va.; **E. P. Goodwin,** genl div. supt. at Covington, Ky.; **E. J. King,** div. supt. at Richmond; **J. A. Fox,** div. supt. at Ashland, Ky., and **J. P. Stevens,** div. supt. at Covington.

TRAFFIC AND ACCOUNTING.

C. B. Bee has resigned as coml. agt. of the Mex. Cent. at Mexico City

J. F. Govan has been made agt. for the Iron Mountain at Helena, Ark.

W. H. Shaw has been made coml. agt of the Mex. Cent. at Torreon, Mex.

J. W. Hicks has been made trf. mgr. of Sears, Roebuck & Co. at Chicago.

F. R. Lacy has been made coml. agt. of the Ind. Harbor Belt at Gibson, Ind.

Henry R. McLean has been made coml. agt. of the Cent. of Ga., at Athens, Ga.

H. H. Holcomb has been made asst. genl. frt. agt. of the Burlington at Chicago.

N. D. Chapin has been made chf. of the tariff bureau of the Mich. Cent. at Detroit.

J. W. Adams has been made frt. claim agt. of the C. G. W., office at St. Paul.

S. V. Wirick has resigned as trav agt. of the C. & N. W. to practice law in Rochelle, Ill.

F. W. Fairbairn has been made coml. agt. of the Queen & Crescent at Cleveland, Ohio.

D. H. Hillman has resigned as genl. frt. and pass. agt. of the E. & T. H. at Evansville, Ind.

P. D. Chandler has been made genl. frt. agt. of the Mutual Transp. Co. at Buffalo, N. Y.

J. S. Patterson has been appointed frt. claim agt. of the Chesapeake & Ohio at Richmond, Va.

R. R. Hargiss has been made genl. agt. of the Monon at Atlanta, Ga., vice **J. T. Green,** resigned

R. G. Cook has been made agt. of the Erie Despatch at Kansas City, vice **J. G. Dryden,** resigned.

H. S. Garvey has been made coml. agt. of the B. & O at Milwaukee, Wis., vice **C. H. Ross,** retired.

M. F. Shulze has been made treas. of the Wisconsin & Michigan at Chicago, vice **B. Shaw,** resigned.

R. L. Dove has been made asst. genl. frt. agt. of the C. & A. and the Clover Leaf at Toledo, Ohio

C. A. Rouse, agt. of the Erie Despatch, has removed his office from Terre Haute to Indianapolis, Ind.

George J. Mohler has been made genl. frt. and pass. agt. of the Idaho & Wash. Nor. at Spokane, Wash.

L. S. Howell has been appointed con. frt. agt of the Pere Marquette at Toledo, Ohio, vice **F. R. Yealand.**

W. G. O'Connor has been made customs agt. of the Ill. Cent. at New Orleans, vice **G. H. Norton,** deceased

F. W. Teasdale has been made trav. frt. agt. of the C. St. P. M. & O. at St. Paul, vice **Leo Bannon,** resigned.

J. J. Johnson has been appointed trav. frt. agt. of the Gould lines at Monterey, Mex., vice **J. F. Searle,** resigned.

W. M. Wallace, dist. frt. solicitor of the Pennsylvania Railroad has been appointed div. frt. agt. at Youngstown, Ohio.

C. A. Boyden has been appointed trav. frt. agt. of the Detroit, Toledo & Ironton and the Ann Arbor at Toledo, Ohio.

A. J. Bandy, genl. pass. agt. of the Quincy, Omaha & Kansas City, has been made genl. frt. agt also; office at Kansas City.

A. J. Virmond has been made genl. agt. of the Barry Transportation Co. at Milwaukee. **L. C. Butler** is auditor at Chicago.

W. C. Kilgore has been appointed coml. agt. of the Central of Georgia at Memphis, Tenn., vice **L. C. Nefler,** resigned.

Charles Waldrich has been appointed tax commissioner of the Missouri Pacific at St. Louis, vice **S. L. Highleyman,** resigned.

L. A. Emerson having resigned as asst. genl. frt. agt. of the Southern Railway at Charleston, S. C., that office is abolished.

H. J. Booth, genl. frt. agt. of the Wabash lines east of Toledo, has been appointed genl. coal and coke agt., office at Pittsburg, Pa.

B. F. Seggerson, has been made genl. frt. and pass. agt. of the Sierra Madre & Pac. at El Paso, Tex., vice **W. T. O'Donnell,** resigned.

C. W. Galligan has been made genl. frt. agt. of the C. P. & St. L. at St. Louis, and **C. H. Stevens** made genl. agt. of frt. dept., office at Chicago.

C. B. Cleveland will continue as genl. agt. of the Rock Island-Frisco lines at Mexico City, and the office will not be abolished as was contemplated.

F. A. Leland has been appointed chairman of the Southwestern Tariff Bureau at St. Louis, vice **George W. Cale,** resigned on account of ill health.

C. J. Acosta has been made genl. frt. and pass. agt of the Florida Central, office at Thomasville, Ga., and **David Porter** is local frt. agt. at that point.

M. L. Masteller has been made trav. frt and pass. agt of the Mex.-Amer. S. S. Co., at Mexico City. **Owen Dugan** has been made trav. frt. agt. at Chicago.

C. H. Ivers, heretofore genl. agt. of the Kansas City Southern at St. Louis, Mo., has been appointed chairman of the Ft. Smith Traffic Club of Ft. Smith, Ark.

M. L. Billups has been appointed joint foreign agt. of the Mobile & Ohio, the Cincinnati, New Orleans & Texas Pacific and the Southern at New Orleans, La.

V. K. Norbert has been appointed trav. frt. agt. of the Missouri Pacific at Cleveland, Ohio. **J. J. Kavanaugh** has been transferred to Birmingham, Ala., as trav. frt. agt.

H. P. Hathaway has been made genl. western agt. of the Kanawha Disp at St. Louis, vice **G. E. Davis,** made genl. agt. at Cincinnati, Ohio. **J. R. Roycroft** has been made agt. at St. Louis.

W. F. Rogers has been appointed coml. agt. of the Queen & Crescent at New Orleans, La., vice **H. G. Shears,** who has been appointed assistant to the joint foreign frt. agt. at that point.

L. M. Allen, heretofore genl. eastern frt. agt. of the New York Central and the West Shore, has been appointed coml. agt., with office at 350 Broadway, New York City, and the former office has been abolished.

H. M. Adams, genl. frt. and pass. agt. of the Portland & Seattle, with headquarters at Portland, Ore., has had his jurisdiction extended over the Astoria & Columbia River, vice **R. H. Jenkins,** who has been appointed asst. genl. frt. and pass. agt. at Portland, Ore.

J. F. Anderson, genl. western agt. of the Georgia Railroad at St. Louis, has been transferred to Jacksonville, Fla., as genl. agt. **S. E. Magill,** coml. agt. at Chicago, succeeds **Mr. Anderson** at St. Louis, and **R. C. Wharton,** soliciting agt. at Nashville, has been appointed coml. agt. at Chicago.

The following changes on the Chesapeake & Ohio are announced: **C. H. Lehman,** div. frt. agt. at Richmond, Va., is transferred to Ashland, Ky., in a similar capacity, and **A. S. Cary** is appointed div. frt. agt. at Richmond. **W. M. Anderson** is appointed frt. tariff agt. in charge of the tariff bureau at Richmond, Va.

J. L. West has been made first asst. genl. frt. agt. of the M. K. & T. at St. Louis, vice **F. A. Leland,** resigned; **W. W. Miller,** asst. genl. frt. agt. has been transferred to St. Louis from Kansas City. **R. F. Campbell** is asst. genl. frt. agt. at Kansas City; **R. L. Martin** is coml. agt. at Cincinnati, vice **R. W. Hockaday,** made genl. frt. and tckt. agt. in Kansas at Parsons, vice **F. J. Hoffman,** assigned to other duties; **C. L. Lyons** is coml. agt. at Joplin, Mo., and **W. J. Thielman** is trav. frt. agt. at Cincinnati.

The following appointments on the Chicago & Eastern Illinois are announced: **A. D. Murray,** genl. agt.; **E. J. O'Neill,** coml. agt.; **W. E. Brown,** trav. frt. agt., all at St. Louis; **J. E. Utt,** genl. agt. and **E. P. Hennessey,** coml. agt. at Omaha, Neb.; **T. A. Matthews,** coml. agt. at Minneapolis, Minn.; **J. B. Ryan,** coml. agt. at St. Paul, Minn.; **Fred Smith,** coml. agt. at Kansas City, vice **E. S. Stephens,** promoted; **T. O. Jennings,** genl. agt. of the frt. dept. at Chicago, vice **C. B. Gregory,** resigned; **George E. White,** coml. agt. at Chicago.

B. C. Stevenson, asst. genl. frt. agt. of the Toledo, St. Louis & Western, has had his jurisdiction extended over the Chicago & Alton. **Edward Keane,** asst. genl. frt. agt. of the former road at St. Louis, will also have jurisdiction over the Chicago & Alton. **C. J. Chisam,** asst. genl. frt. agt. of the Chicago & Alton at St. Louis, has been transferred to Peoria, Ill., in a similar capacity, with jurisdiction over both roads, vice **G. W. Quackenbush,** who has been transferred to Chicago. **E. M. Davis,** trav. frt. agt. of the Toledo, St. Louis & Western at Frankfort, Ind., has been appointed div. frt. agt. at Toledo, Ohio.

J. H. Doughty has been appointed coml. agt. of the Rock Island at Little Rock, Ark., vice **C. L. Eggleston,** resigned. **R. E. Buchanan** has been appointed trav. frt. agt. at that place, vice **O. C. Turlington,** assigned to other duties. **W. C. Knowles** has resigned as trav. frt. agt. at Ft. Worth, Tex. and **W. Baker** becomes coml. agt. Cape Girardeau, Mo.; **J. W. Kelley,** coml. agt., Danville, Ill.; **J. Supple,** coml. agt., Danville, Ill.; **E. E. Dix,** genl. agt. frt. dept., Ft. Scott, Kan.; **J. L. Reinach,** genl. agt. frt. dept., Ft. Smith, Ark.; **W. Milligan,** trav. frt. agt., Ft. Smith, Ark.; **J. A. Hawkins,** trav. frt. agt., Jonesboro, Ark.; **E. C. Hoag,** coml. agt., Joplin, Mo.; **W. L. Coleman,** trav. frt. agt., Joplin, Mo.; **S. L. Rogers,** genl. agt. frt. dept., Nashville, Tenn.; **G. H. Kummer,** coml. agt., Salem, Ill.; **W. C. Smith,** genl. agt. frt. dept., Springfield, Mo.; **J. J. Fagan,** coml. agt., Terre Haute, Ind.

The following appointments on the Frisco System are announced: **J. E. Utt,** genl. agt., **E. P. Hennessey,** coml. agt., and **D. A. Cozzens,** trav. frt. agt. at Omaha, Neb.; **Fred Smith,** coml. agt., **George Firmin** and **H. G. Benedict,** trav. frt. agts. at Kansas City; **R. F. Atwood,** coml. agt. at St. Joseph, Mo.; **J. M. Allen,** genl. agt. at Leavenworth, Kan.; **R. E. Buchanan,** trav. frt. agt. at Memphis, Tenn. General agents: **C. H. Caswell,** Davenport, Iowa; **H. I. Battles** Peoria, Ill. Commercial agents: **E. C. Coffey,** Peoria, Ill.; **A. W. Eberhart,** Des Moines, Iowa; **M. M. Knapp,** Estherville, Iowa; **W. A. Kendall,** Burlington, Iowa; **W. S. Williams,** Cedar Rapids, Iowa; **E. F. Strain,** Topeka, Kan.; **R. O. Roy,** Alexandria, La.; **T. A. Matthews,** Minneapolis, Minn.; **J. B. Rishel,** Hutchinson, Kan.; **John B. Rayn,** St. Paul, Minn.; **E. O. Miller,** Lincoln, Neb.; **F. M. Darrah,** Atchison, Kan.; **E. L. Goff,** Rock Island, Ill.; **R. E. Smith,** Little Rock, Ark. Traveling freight agents: **J. P. Stephens** at Des Moines, Iowa, and **L. E. Severance** at Davenport, Iowa; Live stock agents: **John Fox,** Kansas City, Mo., and **H. F. DeLozier,** Sapulpa, Okla.

ROADWAY AND ENGINEERING.

D. C. King has been made rd. mstr. of the Frisco at Ft. Worth, Tex.

E. P. Weatherby has been made chf. signal maintainer of the T. & P., office at Ft. Worth, Tex.

C. S. McCurdy has been made rd. mstr. of the Mo. & Nor. Ark. at Eureka Springs, Ark., vice **N. P. Anderson,** resigned.

G. W. DeWolf has been made eng. of maint. of way of the Natl. Lines of Mexico, and **H. L. Cummings** is eng. of B. & B. offices at Mexico City.

W. F. Fraylick has been made rd. mstr. of the Southern at Charleston, S. C., and **W. A. Vowell** has been made supervisor of bridges and buildings at Branchville, S. C.

MECHANICAL.

Edward New has been made M. M. of the K. C. Belt line at Kansas City.

Grant Hall has been made S. M. P. of the Can. Pac. at Winnipeg, Man.

J. F. Enright has been made S. M. P. of the I. & G. N. at Palestine, Tex.

C. L. Bundy has been made genl. fore. of the D. L. & W. shops at Scranton, Pa.

Geo. F. Devine has been made master boiler maker of the Grand Trunk at Portland, Me.

Dennis O'Brien has been made trav. eng. of the Mex. Cent., office at Aguascalientes, Mex.

E. G. Brooks has been made M. M. of the M. & O. at Whistler, Ala., vice **J. F. Enright,** resigned.

C. H. Seabrook has been appointed M. M. of the Houston Belt & Terminal Company of Houston, Tex.

W. Kennedy has been made S. M. P. of the Cent. Ver. at St. Albans, Vt., vice **J. Coleman,** resigned.

J. L. Butler has been appointed M. M. of the Missouri Pacific at Atchison, Kan., vice **L. J. Mills,** resigned.

C. H. Osborn has been made M. M. of the C. & N. W. at Baraboo, Wis., vice **W. H. Huffman,** retired under the pension rules.

Jos. W. C. Cyr has been made M. M. of the Burlington at Hannibal, Mo., vice **I. N. Wilbur,** resigned after fifty years of service with the company.

Jas. Coleman has been made supt. car dept. of the Grand Trunk, vice **Wm. McWood,** retired on the pension system; office at Montreal.

E. A. Walton has been made div. S. M. P. of the N. Y. Cent. at Albany, N. Y., vice **G. H. Haselton,** made asst. to S. M. P. at New York City.

W. F. Buck has been made genl. S. M. P. of the Santa Fe, office at Chicago. **J. H. McGoff** has been made mech. supt. at Topeka, vice **W. F. Buck,** promoted.

T. L. Burton has been appointed genl. insp. in charge of air brake, steam heat and car lighting equipment of the Central of New Jersey, with headquarters at Jersey City, N. J.

Peter Maher, S. M. P. of the Clover Leaf, has had his jurisdiction extended over the C. & A. also, vice **C. E. Fuller,** resigned. **M. Marea** has been made M. M. of the Clover Leaf. **Mr. Fuller** has accepted a position with the Erie, office at Chicago.

R. N. Millice has been made M. M. of the Mex. Cent. at Aguascalientes, Mex., vice **R. D. Gibbons,** transferred to Saltillo, Mex. **L. G. Wallace** has been made asst. M. M. at Guadalajara, and **W. J. Dempster** has been made M. M. at Monterey, Mex., vice **J. A. Lewis,** transferred.

OBITUARY.

D. Vannett, rd. mstr. of the Northern Pacific at Fertile, Minn., died on January 1st.

George F. Evans, vice-pres. and genl. mgr. of the Maine Central, died on January 10th at Vanceboro, Me.

H. F. Kenney, pres. of the Delaware Railroad, died at Philadelphia, Pa., on January 10th, aged 73 years.

U. L. Boyce, of Boyce, Va., formerly pres. of the Shenandoah Valley, died on December 27th, aged 79 years.

Eugene L. Hodges, asst. trn. mstr. of the New York Central & Hudson River at Albany, N. Y., died on December 26th

Arthur G. Stanwood, asst. treas. of the Burlington, died at his home in Boston, Mass., on December 31st, at the age of 56 years.

Frank A. Palmer, formerly asst. gen. pass. agt. of the Wabash, died at his residence in Chicago on January 11th, aged 61 years.

W. G. Reinhold, genl. northern agt. of the New York & Cuba Mail Steamship Company, at Torreon, Mex., died on December 25th.

T. L. Courtney, formerly supt of the Richmond, Fredericksburg & Potomac, died at Richmond, Va., on January 9th, aged 83 years.

Samuel Carpenter, formerly genl. eastern pass. agt. of the Pennsylvania Railroad, died on January 8th at New York at the age of 71 years.

Lawrence R. Brockenbrough, formerly genl. frt agt of the Baltimore & Ohio, died on January 1st, at Cincinnati, Ohio, at the age of 54 years.

W. E. Estes, genl. frt. agt. of the Cent. of Ga., was accidentally shot by his wife on January 12th, from the effects of which he died on January 15th.

JOHN R. WALSH.

The verdict of guilty in the trial of John R. Walsh was a most complete surprise, we believe, to all of the many friends of the ex-banker and to his enemies as well. The pith of the accusation was the intent to defraud in the use of the bank's funds, the act of loaning more than 10 per cent of the bank's money to any borrower not being a crime beyond danger of the forfeiture of its charter. It is not our purpose to analyze the question as to whether or not bad judgment is exceptional. We believe it is not—we assume, contrarily, that it is quite frequent and a frailty of even the wisest men. We believe also, that the tendency to combine business into corporations requiring large loans to carry along their plans makes obsolete any effort to apply the 10 per cent limit to borrowers. Theoretically the law has recognition, but is being more honored in the breach than in the observance, undoubtedly because it is altogether impractical.

What reason Mr. Walsh could ever have had to wreck a bank in which he was the greatest loser, taking character and influence into consideration, it is impossible for us to see. By no mental process can we arrive at the conclusion that the intent to defraud was present in his transactions. To the extent of more than a million dollars he was financially interested and the earnings from this money were no trifle to be thrown away. The prospects for his investments outside were not based upon the value of his properties when purchased, but, as we see the situation, upon what his genius as a great developer might make them worth. In every sense wherein the case is regarded, it seems a most unreasonable conclusion to arrive at a verdict of guilty intent.

In connection with our comments the circular below, signed by the lawyers of the defense, is entitled to a careful and analytical perusal.

Men of their reputation issue no public comments unless in their own minds the position of a client has been left obscure in the public estimate. The position of the defendant, as represented by Mr. Walsh's attorneys, is as follows:

CHICAGO, January 18, 1908.

Referring to the verdict rendered today against John R. Walsh; the result of this trial is, of course, a disappointment to us. In our opinion no case was made on this evidence against Mr. Walsh and he was entitled to a verdict of "not guilty." The jury was made up of intelligent men, but they were farmers and altogether unfamiliar with transactions involving business of the character which was shown here. There was in the evidence no clear-cut issue presented as to distinct transactions. The indictment itself covered a large number of transactions, each transaction being set up in very many different counts, the transactions and counts being so many that it would be difficult for a jury to analyze and understand them even if the evidence had been confined to those transactions. But here, upon the theory of showing intent the jury was overwhelmed with a further mass of other unconnected transactions extending for a dozen years before as well as during the period of the transactions complained of in the indictment. Under this mass of evidence the issues of this case were buried. So many transactions, each substantially colorless in itself, and having no just bearing upon the case here, when admitted as tending

to prove the evil intent in the transactions charged, obviously have, from their very mass, influenced the jury to an unjust conclusion. It is noteworthy that as to all counts questioning or involving the securities of The Southern Indiana Railway Company or their value the jury brought in a verdict of "Not Guilty."

We ask a suspension of public judgment upon this case. We feel sure that the public generally regard Mr. Walsh as innocent of these charges. In our judgment there is nothing in this trial or its result to produce any change in that opinion.

Mr. Walsh, as heretofore, will continue to attend to his business affairs, and that he will finally be vindicated we have no doubt.

John S. Miller,
William J. Hynes,
Edward C. Ritsher,
Samuel R. Hamill,
Attorneys for John R. Walsh.

ENCOURAGING VIEW.

There is no one who is more familiar with the business conditions of the country than the officials of the large railway systems, as their interests come in contact with so many sections of the country and the varied enterprises throughout those sections. Any expression from a railway executive on a subject that interests the public so closely as business conditions will bear with it considerable weight, as it has the ring of authenticity about it. We take pleasure in reproducing a very interesting statement from President Winchell of the Rock Island, which, we believe, will be read with a great deal of interest. Mr. Winchell says:

"In spite of the recent recession of business, 1907 is the best year Rock Island lines have had, and the property, both in permanent way and rolling stock, is in better condition than ever before. It is true that net earnings of late are not so large as those of corresponding months last year, but there has not been enough decrease to offset the gains of the earlier months of 1907. We do not anticipate any further considerable decrease in gross earnings, but the net earnings of Rock Island, in common with those of nearly every railroad in the country, will be more or less unsatisfactory for some months to come. Expenses for the time being cannot be reduced sufficiently to meet the reduced volume of traffic and the many considerable rate reductions which have been made.

"We have spent during this past year $7,000,000 for additional facilities and improvements and another $7,000,000 for rolling stock. No railroad is ever finished, and this is particularly true of one in the rapidly growing southwest. But we are certainly in better shape to meet the tide of traffic when it rolls high again than ever before.

"The general business of the year will depend to a large extent on the crop outcome, and there is nothing unfavorable in sight now in that direction. Our winter wheat has a fine stand and acreage held its own in nearly all of the states. The price of cotton and corn insures the planting of large acreage of those crops."

BRIGHTER OUTLOOK.

The business conditions for the first month of the new year have proven fully as well as had been anticipated. The outlook for commerce and labor is encouraging from most every section of the country.

Since the first of January many factories and steel works have renewed operation with full force of men, or nearly so, and the railway shops that were closed before the holidays have again started up.

The fact that financial conditions have improved so satisfactorily within the past sixty days, and that there is an increasing demand for manufactured goods, is assurance that business in the transportation field will continue to improve. The railway shops are busy with few exceptions, and it is believed that the demand for railway equipment and supplies will reach the former state this coming spring.

VALUABLE INFORMATION ABOUT TIES.

Forest Service Circular No. 124 gives some facts in detail that are among the most emphatic arguments in favor of forest protection. This question can be dwelt upon by the writer of railway interests without any danger of making care for the future of too much importance. In truth, this is the question of the future for railway or farm owner and the homeseeker, who in time is to become the home-builder. With these interests working in harmony, there is a more likely chance that legislation will not stop inquiry short of the proper regulation of those who lay waste the land. For our present requirements some change in the tariff will at least postpone a large part of our troubles. This, however, can only be temporary in character so that forest protection must be very soon a political plank, and it is the best form of politics to conserve our estate *for all the people.*

TAFT AND BRYAN.

In the way of strictly non-partisan comment relative to presidential chances, Judge Taft looks like a very careful student of conditions. His talks are not radical and his recent address in Cooper Institute concerning the relations between capital and labor cannot be fairly criticised by either element. Mr. Bryan, who is equally frank in his public speeches, has in our opinion not in any way advanced in party esteem by his reported statement in Chicago that the platform of '96 was all right. The majority of his own party, we are convinced, think it was not wisdom, and the evidence of conditions ought to favor his letting a platform which contained the free silver plank alone. In other respects Mr. Bryan's frankness in his dealings with the people is one of his strongest cards. It has been President Roosevelt's and apparently is to be Judge Taft's policy. In his speeches the Secretary gives proof of ideas of his own concerning government, and having no relation to suggestions from other quarters. He certainly speaks from conviction, and not by advice or by a political rule. We seem now to be moving to the choice between Taft and Bryan. While both men are good talkers and both are sincere, we believe there is a further contrast to be thought of, and that is, which man has been the most efficient in public life? It is not so much a question of what has been said, but rather which man has been the most benefit to his country and with the least material benefit to himself. By this standard agreeing that both men are stalwart intellectually their proper measure can be taken.

The Railway Jounrnal wishes to take in over 5,000 new subscribers between now and January, 1909, and is willing to pay railroad men well to help us do it. Besides a liberal commission on each subscription we will pay $15 cash to the railroad man who will send us the greatest number of new subscribers and renewals during the year 1908, and will pay $5 for the second best list. Write us now for the agency

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Official Organ, RAILWAY JOURNAL, Chicago, Ill.

SIGHT-SEEING OPPORTUNITIES AT LOS ANGELES.

Apropos to the N. A. R. A.'s excursion to Southern California in February, and borrowing in part the words of a publication, entitled the Sightseer, no city east or west suggests such picturesque opportunities and sight-seeing possibilities to the visitor as does Los Angeles. The very name of this city of tropical magnificence and scenic attractions awakens an interest and arouses an enthusiasm beyond that of all other cities in the nomenclature of our common country. Originally called Puebla de Neustra la Reina de Los Angeles—Town of Our Lady, the Queen of the Angels—but since shortened by time-saving Americans to its present title, it still brings up visions of a vanished age, a period of Missions and languorous existence in a land of plenty which, by the incomparable gifts of nature, barely escaped being Paradise itself.

The first and natural inquiry in the mind of every tourist on arrival at Los Angeles is, "What is to be seen and how may I see it?" and the same interrogatory will undoubtedly be uppermost in the thoughts of each member of the N. A. R. A. upon reaching that metropolis of the "land of sunshine and flowers," that "garden-dotted city lying on the slope of the San Gabriel Mountains." For your correspondent to try to answer the question exhaustively would be for him to begin the writing of a book, to run in a series of chapters through the monthly issues of the RAILWAY JOURNAL until finally completed. But that does not correctly represent his intent at this juncture, much less his ability to do such a thing, and it would not suit the present emergency of the case. Besides, it is uncalled for. All the places and views of absorbing interest could not be visited in five short days even if one had them at his tongue's end and knew just where to find them. Moreover, the regular program of the convention will soon be out and in it will probably be found a selection of prominent attractions laid out for the association members to visit, and sufficient in number to consume all the period of their allotted stay in the convention city.

JACKSON SQUARE, NEW ORLEANS.

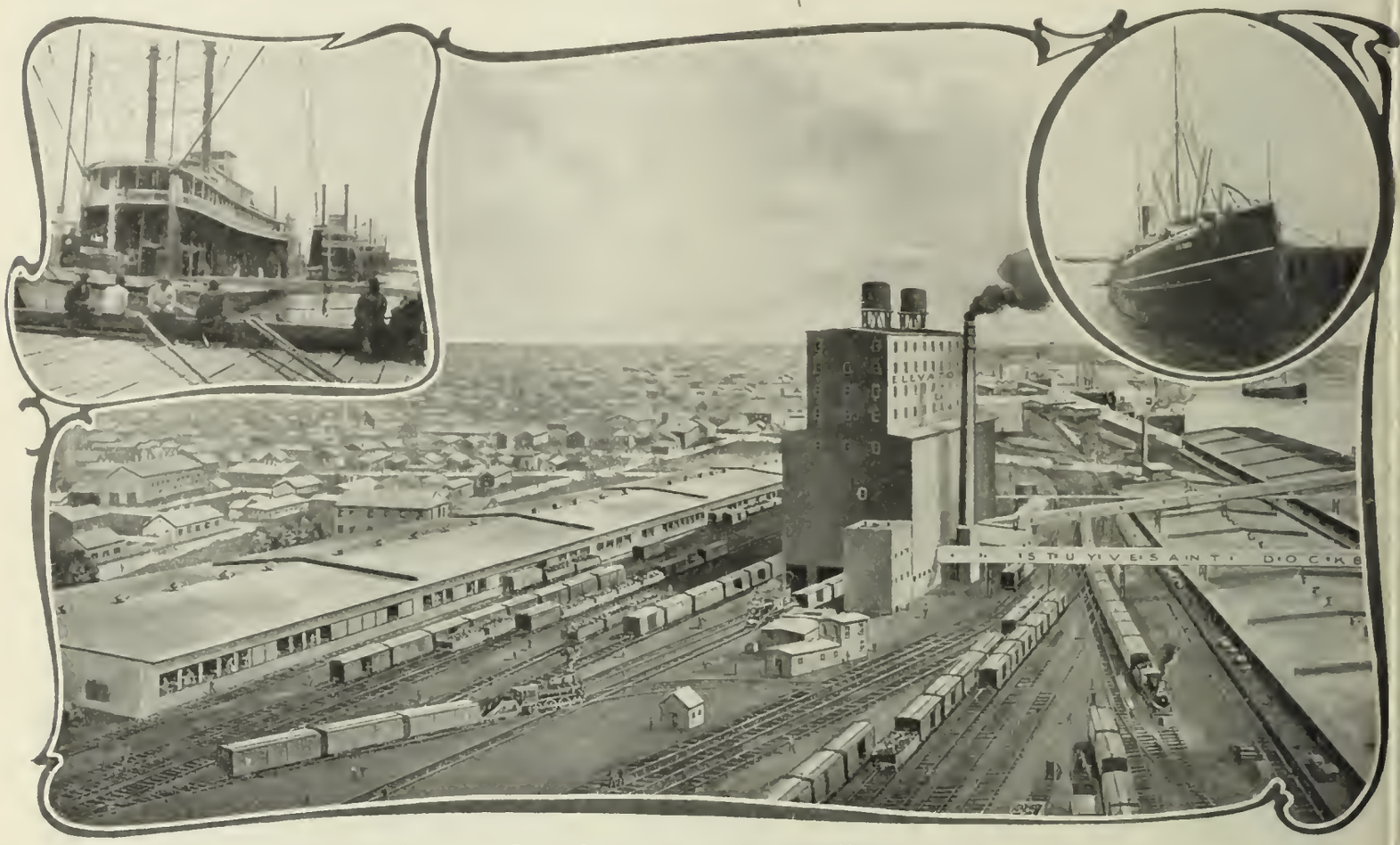
Fortunately, too, the itinerary of the trip has been so arranged as to the saving of time, that San Bernardino, Redlands, Riverside and the largest orange groves in the world may be seen as we go, and thus avoid the necessity of an extra excursion to those localities from Los Angeles after we get there. Because to go to California and return without seeing the orange groves and the luscious oranges hanging on the trees, the most prominent feature characterizing the state, would be to subject the members of the N. A. R. A. with their wives and children to ridicule, if not contempt.

The real object of this communication is to give

some little description beforehand of those views and localities most likely to be chosen in the printed program for the association members and their families to visit in a body.

The first one is Mt. Lowe, fifty miles from Los Angeles. To miss a trip to Mt. Lowe is to miss one of the grandest opportunities of a lifetime. On the top of Mt. Lowe stands Alpine Tavern, 5,000 feet above the level of the sea. To go to this attractive resort you travel by electric railway from Los Angeles through Pasadena to Altadena. From there you ascend by a marvelous cable line, one half mile in length, with an incline of from forty-eight to sixty-two per cent, which lifts you to Echo Mountain, 1,400 feet nearer the sky. This means an ascent of from forty-eight to sixty-two per cent perpendicular in every 100 feet, and gives you an idea of its steepness. The cars are arranged to keep the occupants always on a level, and there is no danger, as the cable attached to the cars is tested to a strain of 100 tons, while it is never subject to a weight of more than five tons, and no accident of any kind has ever happened. From Echo Mountain to Alpine Tavern open trolley cars are used, affording magnificent views of mountain, valley and sea.

The second is Santa Catalina, the great island resort of the Pacific Coast, only a little more than three hours ride from Los Angeles. Its fame is world wide. To reach there you go by railroad to San Pedro, and thence twenty-three miles by the San Pedro steamers to the Island. Its twenty-two miles of land, mountain, cliff, valley, forest and peninsula possess a magnificent scenic stage road, and wonderful views of deep gorges and waterfalls are among the attractions of the interior of the Island, yet, perhaps the larger number of visitiors find most enjoyment in or upon the water. It is a summer isle with the surf beating on the rocky cliffs of the south and west coasts, and with the ocean sleeping in glassy stillness along the sandy and pebbly beaches to the north and east. Here there is no surf, no wind, and so clear is the water that all the wonderful vegetable and animal life on the bottom of the ocean may be seen through the bottom of a glass-bottomed boat, as if the water were of crystal. In the height of the summer season there are often from five to six thousand people on Catalina Island. Incidental to a trip to Catalina one also gets to view some interesting sights at San Pedro. This is one of the largest and best harbors on the Pacific Coast, and its commerce is extensive. Sometimes as many as fifty ships are to be seen there riding at anchor, or tied up to the wharf busily engaged loading or unloading their cargoes.



Stuyvesant Docks, Illinois Central Railroad, New Orleans, La.

Third, the Chamber of Commerce of Los Angeles. This is located on Broadway, between First and Second streets, where 22,000 square feet of space is devoted to the housing of a splendid collection of California products, industrial, agricultural and historical. The Palmer collection of Southern California Indian antiquities, is a feature there of particular interest, in the completeness with which the field has been covered, as well as in the perfection and rarity of the specimens. The workmanship is marvelous and the collection is an epitome of the modes of life among the primitive races of that locality. The Coronel collection is representative of a later period, the picturesque time just before the American occupation. It is the private collection of Don Antonio Coronel, a typical Spanish gentleman of that day. Its diversity is remarkable, including among

many other things some Ramona relics, together with the table on which Helen Hunt Jackson wrote the book, and a thousand other things which appealed to the old Don's fancy. Much space might be used in reciting the wonder of the Los Angeles Chamber of Commerce, and the wealth of objects displayed there that cannot be seen anywhere else. All these may be viewed in a cursory way by members of the N. A. R. A. and their families without consuming too much time. The tourist who goes to California with a nine months' limit to his ticket, has none too much spare time to take in all the new things to him which are to be seen there, and if he stayed to the end of his limit, might then learn of some attraction or view that he had missed. But the excursionist, in the short period of a few days, to make the best of his opportunity, must content himself with a general look at the country, and with transient visits to its beautiful cities, villas, lakes, parks, flower gardens, groves and ocean resorts. There is much in this, however, so let every member of the N. A. R. A. prepare to go and to take his family and not overlook the glorious opportunity.

time the customs and methods of a civilization as old as that of Egypt. At San Antonio, where the next stop is to be made, there will be visited a city that is without a peer of its kind in the United States. It is the Alamo City, the city where history was made under the most trying circumstances, and where civilization was introduced by a foreign tongue before the American Constitution was established, and even before Bunker Hill became famous as a battlefield. The members are scheduled to visit the old Alamo building, the Cradle of Texas Liberty, which has been baptized in the blood of such heroes as David Crockett, Bowie, Austin and other immortals.

At Houston will be found another interesting city, where hospitality is found always at every fireside and gateway. The stop will be brief, but something will be doing every minute.

At New Orleans will be found a large port full of historical interest and fascinating attractions. One of the most interesting features from a commercial standpoint to be visited in that city is the Illinois Central's big shipping docks—Stuyvesant docks, in the edge of the city on the Mississippi River. From a historical

Grand Canyon, Arizona Santa Fe Railway

SOME OTHER POINTS.

On the return trip the N. A. R. A. special will make its first important stop at El Paso, Tex., the city of the borderland. Besides a thrifty cosmopolitan town, it is a great gateway between the East and the far West, and between this country and Mexico. The members will visit Mexico from El Paso and study for a brief

standpoint the scenes in and around Jackson Square are among the most interesting. Facing this beautiful square is the famous Cabildo (government house) in which the transfer was made which gave to this country the vast Louisiana territory. Adjoining these buildings is the famous St. Louis Cathedral which was built in 1794, and now marks the spot where the first church

was built in New Orleans in 1721. The far-famed French market is in the vicinity of Jackson Square, and well worth a visit by any stranger. The last important stop en route home will be at Memphis, the great river port of the central south. It has been a great cotton market for years and is a most interesting city from a commercial standpoint.

J. E. Gray.

THEORY VS. EXPERIENCE—A RAILROAD STORY.

BY DELLA DEAM.

To begin at the beginning, Theory's father was general manager of a well-known railway company. Theory had carried off the class honors from the best university in the state, and in accordance with the wishes of his father, he entered the employ of the company as a clerk in the engineer's office, where he began railroad life much the same as any other clerk had done. Being young in years and ambitious, his progress was rapid, until it was openly acknowledged that if the present energetic forces prevailed his career would be a decided success. His blue prints, map drawings, etc., were considered beyond the average in accuracy and neatness, and promotions came in the course of a few years as so many stepping-stones.

But along about this time an opportunity presented itself to the father to assist his son to the superintendency of a small division on the line. Naturally he was desirous for this promotion for him, for in his own opinion Theory was duly qualified in executive ability. So, in due time, the appointment was made and Theory assumed the duties of his office, feeling doubly sure, his cloak of wisdom was indeed a rare one.

Since his school days he had cherished a pet idea that a college education was necessary in any line of railroad work to make its mechanism perfect, and he had needed only the ruling power over this stretch of less than a hundred miles of track to put it to the test.

Not many days after the appointment was made the question arose as to the class of men to employ, and needless to add, some lively discussions followed, wherein Experience, Chief Clerk and Dispatcher, and Time, the trainmaster, came to know that their knowledge and seeing proclivities belonged in the class of "out of date" and "no style."

Experience had been long in the service filling various positions in the different departments, and was noted for his quiet, modest demeanor in whatever duties were his to perform.

"Yes, Experience, I am tired of this old-fashioned ruling. The whole division is crooked; no style. What I insist on having is my idea of a thoroughly up-to-date division in every line of work. Why, half the men can scarcely write their own name," remarked Theory as he wheeled his chair closer to the desk.

"Perhaps so, Theory, but they know how to do their work, and the old division may be crooked but it strikes all the good shipping points. As I stated before, your idea may be clearly correct, works beautifully on paper, but not so on two lines of steel where life is in danger every day in the year," quietly replied Experience, resuming his work of sorting out correspondence.

Just then Time entered in obedience to a recent summons. Experience bent deeper over his desk awaiting the attack.

"You sent for me, Theory; I am at your service."

"Why-er-yes, referring to our discussion of a few days since; the fact is I am wholly disgusted with this old-style division. I am sure my idea of this college education is the thing needed to polish up——

"It is not practical, Theory, it will not do," insisted Time.

"We are done with practicability. It has no place among the ideal such as I shall make of my division," said Theory, proudly.

"Then you must make a place," quickly retorted Time, and he left the room as abruptly as the interview ended.

Experience apparently was too busy to glance up, but in reality was thinking hard and fast. A moment later Theory also made his exit and left him to continue his thinking in peace and quietude. But all their pleadings proved in vain. They finally consented to be tagged "out of date," and sat quietly down to await future developments.

After many days, and they were unusually long to Time and Experience, the weeding out was accomplished to the entire satisfaction of the new superintendent. As it were, the old division dropped her coarse characteristics and sallied forth polished heel and toe, ready for the grand finale.

"Ah," said Theory, joyjully, "nothing like the college boy to make things hum."

Experience ventured no reply. These days he kept his own counsel and worked faithfully on. Time wondered and wondered again at things stranger than fiction, but he also kept his own counsel.

Just at present everything seemed to be in first-class working order, but ere long a tangible something loomed up on this horizon of idealism; it began to grumble and complain, growing bigger with each complaint; there was dissension among the men; claims came in by the bagful and were stacked up in the corner near Theory's desk for future attention. Every train brought more and more until the stack was nearing the ceiling mark. Theory began to show signs of mental distress and fear of the spectre so near his side, and found as many excuses as possible for remaining away from the office.

But one morning he arose quite early and made his way to the office. As he walked along the thought came to him that he was overworked, nervous, tired out; he must take a short vacation to recuperate. "Why have I not thought of that before," he said to himself as he unlocked the door and went in, kicking viciously at the old gray cat, who arose as was the custom to greet the first comer.

He sat down at the desk quite undecided as to what plan to pursue, and was thusly deep in study when the passing of a train jarred the building and loosened the stack of complaints from their resting place. They began tumbling down one over the other, pelting him on the head and shoulders, totally upsetting his already impaired nervous system. He was not aware of the fact that Time and Experience had held an early morning conference over in Time's office, and had decided to take up chicken farming, taking life easy the remainder of their days. It was just at this crucial moment they entered the office unperceived by Theory, who was scrambling out from under the claims and the affair was not one of mirth to him.

"I am glad you came early, boys," remarked Theory, grabbing a handful of the claims and tossing them savagely back in the corner. "I am sick, overworked and need rest, and have decided to take a vacation beginning tomorrow."

Experience and Time exchanged glances, and each struggled frantically to remark that they had reached the same conclusion.

"But what about these complaints and claims?" inquired Experience. "Well, they are not mine," snapped Theory.

"They are the result of your pet hobby, and your boys who think they should have passenger runs because they are not used to hard work," remarked Experience.

"In other words, they haven't learned to be railroaders yet," added Time.

One word brought on another until the argument grew heated and lasted the entire forenoon. Experience's patience had long since grown threadbare, and Theory, unwilling to admit defeat, the affair was growing into a feud. On their way to lunch at the noon hour, just as Time had predicted, Theory and Experience came to blows. With the assistance of some bystanders, Time succeeded in separating the fighting twain, and a few moments later they all disappeared around the corner in an ambulance. They were next heard of the following morning when their case was called for trial.

"Are the witnesses present for this case, Theory vs. Experience," asked the bailiff in his usual gruff voice.

Being replied to in the affirmative, the regular proceedings were gone through and the matter placed in the hands of the chief magistrate for disposition. He glanced over his spectacles and bade the three arise. In a stiff, sonorous voice each one was soundly lectured, and as a future reminder he said, "Theory is all right in its place, but it takes both time and experience to be a good railroad man."

John, from the next room, says "Pipe's out."

SHOWING FAVOR TO THE ROADS.

Signs of the times are becoming more favorable. The epidemic of railway legislation that has been sweeping this country for the past eighteen months, is, we believe, gradually dying out. The people are becoming more familiar with railway conditions and what is really due them from a legal standpoint.

From out of the West comes the assurance that adverse railway legislation is not urged, and that in the state of Kansas, too. Governor Hoch of that state called a special session of the legislature last month as a result of urgent correspondence requesting it. However, the governor gave it out that in all his vast amount of correspondence on the subject of needed legislation, "not a single letter or telegram has been received asking for additional railroad legislation." Inasmuch as Kansas statesmen(?) are among the leaders in making anti-corporation laws, the testimony of Mr. Hoch sounds remarkable.

Another encouraging sign comes from Texas. One of the Texas state railroad commissioners is advocating a rate of 2½ cents per mile in the Lone Star commonwealth, and by the aid of some members of the press, the commissioner has stirred up considerable sentiment for such a rate. However, many of the good business men have opposed it and commercial organizations of that state have passed resolutions against forcing the roads to sell tickets at that rate. As a general thing you can depend on the business men of Texas to take the proper stand on all practical business methods, and it is worthy of comment that the masses of them are now opposed to anything that means an injustice to the railroads. Not only the leading papers, but also some of the rural weeklies of that state have taken the ground that a reduction of passenger rates is wrong. The Dallas News of a recent date has placed this matter before the people in an editorial that rings with sound logic. In its first paragraph it says:

"The Austin statesman insists that if old two-cent-passenger-fare should become a candidate he would sweep Texas Probably that is true. It may be equally true that if old one-cent-passenger-fare should decide to run he would win. Herein lies the danger of it. Many people vote for what they want without stopping to study out the natural consequences. If the contest were brought down even to free rides, a few foolish voters would vote for that. They would live to enjoy a few free rides, unless the roads run down so low that all the passengers were ditched and killed, and that would be the end of the fun. In a short time they would have no railroads at all, and while depriving themselves of convenience, comfort and safety, they would have deprived thousands of others of their rights in the premises. Some might vote for free rides in order to ride, while others might be moved to do so through their prejudices against the corporations. In any case they would be like unto the man who either for fun or for pure devilment saws off the high limb upon which he is sitting—between himself and the tree."

The real motive of an effort to secure reduced rates is aptly expressed by the News, as follows:

"The fact that the cheaper fares' policy is popular and may be the very best slogan for ambitious candidates to get into office on does not make it wise or right. It cannot be made right where it is wrong by attempting it merely as an experiment wholly at the cost or loss of the roads. The first thing to do is to see to it that the roads, the rolling stock and the service are made better; and to this good end it would be most fortunate for the people of a vast new state like Texas if fewer railroads, as well as fewer platforms, were used merely as a means of getting in on."

AS TO COTTON BILLS OF LADING.

The cotton exchanges in the South have been notified of a resolution adopted by the bankers of Liverpool and Manchester, declining to accept drafts drawn on ocean bills of lading for cotton not signed by properly accredited agents of the railroads at the compress or junction points, or by the ship's captain or other authorized agent after receipt of the cotton into the custody of such captain or authorized agent at the port of shipment.

To correct the evils of the old form of bill of lading on cotton shipments, a conference was recently held at Liverpool by leading exchange members from Bremen, Liverpool, Havre, etc., at which the following resolution was adopted:

1. That the proposed exchange bill of lading is not a satisfactory document.

2. That an ocean bill of lading, issued against goods still in the interior, when attached to a bill of exchange, is not a satisfactory collateral to those financially interested, inasmuch as it is a misleading document as to facts, and is dependent for the fulfillment of the conditions as to final delivery therein contained inter alia on the personal responsibility of an individual who has control of the goods when passing from the custody of the land to that of the ocean carrier.

3. That no bill of lading will be satisfactory except: –

(a) A through bill of lading so drawn as to establish the continuity of responsibility of the several carriers from the interior point to the ultimate European or other foreign destination, or,

(b) A port bill of lading, duly signed on behalf of the steamer by the captain or other authorized agent after receipt of the goods into the custody of such captain or authorized agent at the port of shipment

4. That the railroad companies be approached with the request that in order to insure validity of through bills of lading their agents at the compress or junction points only should be permitted to sign such bills of lading

5. That a sub-committee be appointed to draw up a report of this conference and to take such steps as may be necessary to carry out the above resolutions, and to support any movement they may think fit for obtaining the adoption of a uniform through bill of lading.

MECHANICAL

NOTICE.—Communications are requested for publication relating to locomotive and car designs and equipment; also to special tools to facilitate shop work, or any subject tending to promote the efficiency of the Mechanical Department of railways. All practical men are earnestly requested to contribute early notices of official changes and additions of new equipment for the road and shop, both by purchase and construction.

Description of novel and meritorious devices recently designed that are of general interest will be published in our reading columns free of charge.

All communications relating to this department must be addressed to the Mechanical Editor, Railway Journal, 66 Sherman Street, Chicago, Ill.

GENERAL FOREMEN'S PROGRAM.

President E. F. Fay of the International Railway General Foremen's Association, announces that the next annual convention will be held at the Lexington Hotel, Chicago, May 25th to 29th, inclusive.

The following topics for discussion and committees for same are announced by President Fay, as follows:

1. The pounding of the left main driving box in preference to the right. What causes the pounding and how could it be avoided? C. H. Voges, chairman, Bellefontaine, Ohio; E. R. Berry, Galesburg, Ill., and W. H. Kidneigh, Grand Island, Neb.

2. Modern shop construction, cross pits or longitudinal? Location of wash rooms and lavatories. Best location for each department. Care of shop order material and convenience of storage. L. H. Bryan, chairman, D. & I. R., Two Harbors, Minn.; D. E. Barton, Topeka, Kan.; L. R. Laizure, Hornell, N. Y., and E. F. Fay, Denver Colo.

3. Reporting work vs. engine inspection. Should either be discontinued or are both methods essential? S. A. Moore, chairman, U. P., Cheyenne, Wyo.; M. B. Warne, Fayetteville Ark.; A. E. Thomas, Oelwein, Iowa; J. C. Wilkinson, E. B. Turner, Danville, Ill.

4 The apprentice question. How can we obtain the right kind of material and how can we keep them interested? The benefit of night schools for apprentices maintained at company's expense. Does company obtain sufficient benefit to warrant this expenditure? A. O. Berry, chairman, L. S. & M. S., Collinwood, Ohio; H. J. Carrier, Huntington, Ind.; W. C. Groevening, P. M., Grand Rapids, Mich.; W. G. Larmour, Norfolk, Va.; W. Pohlman, Middletown, N. Y.

5. The mileage of a locomotive. Its relation to cost of shop and running repairs. Does it pay to overhaul an engine that will give but ninety days flue of firebox service? How should this be handled? Who should determine when to shop an engine and who should furnish the work report? E. C. Hanse, chairman, S. A. L. Ry., Savannah, Ga.; G. E. Bronson Colorado Springs, Colo.; George Moore, Moneton, N. B.; E. C. Marsh, Portsmouth, Ohio; Chas. Paskesen, Alamogordo, N. M.

6. Why do staybolts break more frequently on left side? A. Bradford, chairman, Big Four, Urbana, Ill.; H. S. Briskley, Alamogordo, N. M.; B. Buzzell, Poplar Bluff, Mo., W. H. Clough, Hammond, Ind.

7. The quick dispatching of engines at terminals and how to handle most economically. D. E. Barton, chairman, Santa Fe Ry., Topeka, Kan.; G. W. Keller, Portsmouth, Ohio; F. W. Rhuark, B. & O., Holloway, Ohio, Wm. Moore, Carbondale Pa.; E. G. Brooks, Whistler, Ala.

8. Which is the cheaper to maintain—The piston or slide valves? W. E. Farrell, chairman, Big Four, Columbus, Ohio; Ben Beland, Springfield, Mo.; Joe Clough, Friseo, Oklahoma, Okla.

The above program is well worth the trip to the convention. This promises to be a big convention and a large attendance is anticipated.

The Bureau of Manufactures at Washington, D. C., is in receipt of a communication from an organization in Western Europe requesting to be put in touch with manufacturers of pressed steel fire bars.

MAKING LOCOMOTIVE FRAMES.

The following is the committees report on "Making Frames," read before the Montreal convention of the International Railroad Master Blacksmiths' Association, also discussion which followed:

Paper by Grant Bollinger:—The subject of main frames, assigned this committee, is one that has been discussed quite frequently, and the method of manufacture is about the same all over the country.

In the manufacture of wrought-iron frames, one of the most important features is the selection of good scrap. Another important feature is the selection of a forgeman who is thoroughly familiar with the results necessary to make his work a complete success.

Our practice in the manufacture of wrought-iron frames at the Altoona machine shops, is to pile the scrap on boards 12 inches wide and 24 inches long, each pile containing about 750 pounds. From this we secure a slab about 3x18x48, and in forging the rail, about four or five of these slabs are taken according to the size of the frame desired

The rail is forged in one solid piece to the desired length and our braces are also forged in one solid piece. The frame is then taken to the blacksmith who welds the braces to the rail at the center of the pedestal leg. This required but two welds to the brace, thus obviating the danger of so many welds. The frame is then ready for the machine shop. Our experience has been that frames manufactured in this way have given excellent service.

The next thing to be considered under the subject of main frames, is one that has caused our best mechanics and scientific men a very great amount of study, namely the cause of the breakage of main frames.

I believe the breakage is probably due to insufficient braeing, and my belief in this is strengthened by the fact that since the adoption of the Walschært valve gear on the late type of locomotives, we have had to repair but six frames during a period of two years on locomotives using this gear. At the present time we have about four hundred of this class of engines in service. The use of this gear enables the builders to brace the frame at the weakest point.

The theory has been advanced that the breakage of main frame is caused by crystallization; however, the opinion of our best scientists today is that this theory is wrong. Their opinion is based on the fact that when the metal is heated, the fiber returns, thus demonstrating that crystallization has not taken place, but shows conclusively that the metal has simply become "tired" through long service and constant use, which produces the same condition as would exist in crystallization, until the metal is rested by reheating, which returns it to its natural state.

We will next take up the subject of repairing main frames. The most economical way of doing this work is on the engine, when the fracture is at such a place that it can be properly gotten at. Our system of doing this is to first spread the frame by using a jack between the pedestal legs to open the fracture sufficiently to allow us to insert a piece of wrought-iron from ¾ to 1 inch in thickness, taking care that the grain in the piece runs the same way as the grain in the frame. We then build a furnace around the fracture out of ordinary fire-brick, and bring the frame to a welding heat by the use of fuel oil. When the proper heat is reached, the jack is quickly released and the frame drawn to the proper length by the use of clamps. The furnace is then dropped and the weld made by the use of rams from either side. Some foremen use a special furnace made from fire-clay, which usually breaks when the furnace is dropped, requiring a new furnace for each weld and which is much more expensive than our furnace made of fire-brick, as we are able to use the same brick for two or three welds.

When the frame is broken in such a way or place that we are unable to weld it on the engine, it is sent to the shop to have repairs made, and wherever possible the old end is welded on again, thus saving a large amount of machine work, which is necessary when a new end is supplied. This gives just as good results, and in this way we keep the cost of repairing main frames down to a minimum.

Paper by G. A. Hartline:—The question of repairing locomotive frames and making new ones has been quite thoroughly discussed, and very little remains to be said that is new on this subject. Different localities have different practices, and each one seems to think their particular practice is very satisfactory. Experiments have been made from time to time to develop a satisfactory and economical method of welding frames in posi-

tion without removing them from the locomotives; some have tried dressing the frames at the point where the break occurred, heating them with crude oil and welding them together with a ram or a heavy sledge. Others have tried the "Thermit" welding.

While the above methods appear to have been satisfactory in a few places, it is not considered to be a universal success.

At Collinwood shops we have tried both of these methods; have welded frames with "Thermit" and have also welded frames by heating with crude oil, although neither one has been successful to the extent that we have adopted it as our standard practice.

In welding with oil, the difficulty experienced was in getting the parts to weld perfectly. Invariably on our modern engines the weld would fail a few days after the engine entered into service. On the frames which were removed and welded in the blacksmith shop under the steam hammer we did not experience this trouble and I do not know of a case where the frames broke in the weld. Most of our frame breakages occur on engines where the engines have a splice back of the cylinders. This design was common to the modern engine designed eight or ten years ago In such cases we remove the frame and weld on a wrought-iron front, thus making a solid section throughout, 35 feet 6 inches long. We cut off the old frame back of the front jaws and weld on a new section of wrought-iron or steel. We have been successful in welding either the wrought-iron on steel or the steel on steel; both welds were successful where we made them in the blacksmith shop under the heavy hammer.

As to the welding of broken frames on the locomotives, no doubt much time could be saved if these frames were welded in position, but it is our experience where frames are broken that in most cases it is necessary to renew the frame bolts on account of their working in the saddles and frame braces, and it is also necessary to line down the wedges and re-tram the engine. This being the case, it is questionable if the frames cannot be removed from the engines and welded more satisfactorily than they could be if the work was done on the engine.

Paper by Jas. T. McSweeney:—In our shop at Garrett, Ind., we make no new frames unless in case of a front frame being destroyed in an accident, in which case we make them from old car axles. Main frames are never made here, but we do all other kinds of work for locomotives.

We repair a great many frames and do this work in various ways. Where possible we make a scarf weld, which I consider the best as it is my experience that few of them come apart. The V weld is a good one, too, as in many cases a weld could not be made without this method, but it is not as successful as the scarf. We make all V welds on the anvil, as we have no hammer that will handle them, but all scarf welds are made under steam hammer.

We make a great many frame welds under the engine and have had good results with them, as it is only in rare cases that they come apart. We find that it is economy to do this kind of work to engines in service, but when engines are out of service, I believe the proper place to do the work is in the smith shop, where we can be more certain that a good weld is made.

Our method of making frame welds under engine is governed by location of break. If between pedestal jaws in main part of frame, we drop one pair of wheels and spread the frame so a ¾ or ⅞ piece can be inserted in break, build a furnace of fire-brick around the frame and use carbon oil for heating. Fuel oil has been tried, but does not give as good results as carbon, which I think is due to the burner in use. Will send you a sketch of this burner, which was made in shop. You may have seen the same kind. In making these welds we also use a ram at back end of frame to drive it to proper length while hot, and after removing furnace, we hammer up both sides and top and bottom with light hammers, which operation fills up any openings in the metal.

The American Locomotive Company built 250 engines for the B. & O. about a year ago, and I was located at Schenectady, N. Y., inspecting same and all of the frames of these engines, except nine set, were wrought-iron made from scrap piled 12 inches wide, 14 inches high and 18 inches long. These piles were made into slabs 7 inches or 8 inches wide and 2 inches thick, and the back of main frames were forged from these slabs, piled together to make a back to finish 5x6 inches. The lug on which the leg was welded was 6 inches high from the main part of the frame in order to get away from the back with the weld, so in case the weld gave way you would not get back hot in making the weld and also would help keep the frame straight. Some smiths like to have the scarf run down on the back, but we did not think so. We have not had any of them come off yet, but have heard that four or five of the 250 engines have had broken frames at different places. I am sending you a sketch of these new frames showing how the welds were made. The "He" weld or part was on the main frame and the "She" weld or part on the leg

We have a number of Class B-18, 10-wheel engines that have been in service about six years and about fifteen of them had cast steel frames, and I believe that every one of these frames have been broken at one place or another. The greater number of them gave way at the main front pedestal jaw in the main frame, but not always in the same place or in the same way. We put a brace over the top of the frame, which has decreased the number of breakages at this point, but only causes a break at some other point. The steel does not seem to be of good quality and sometimes in center of fracture there are holes in which a leadpencil would enter. The same class of engines with wrought iron frames have not given so much trouble.

I believe this is all that I have to offer at the present time and trust that it may be of assistance in making your report and hoping that the coming convention will eclipse all former ones.

(*To be continued.*)

TRIALS OF A MASTER MECHANIC.

The average railway mechanical foreman and master mechanic knows what it is to try to "do business" with a lack of supplies. The writer not long since, heard an ex-master mechanic state how the road he was with once was in the habit of purchasing oil by the can. It does not always appear to the purchasing department the loss the mechanical force suffers through a lack of proper supplies. It is like trying to build a house or structure without sufficient skilled help. A road that undertakes to keep up motive power without ample shop machinery is handicapped in every branch of the service. The same can be said in regard to the storeroom supplies.

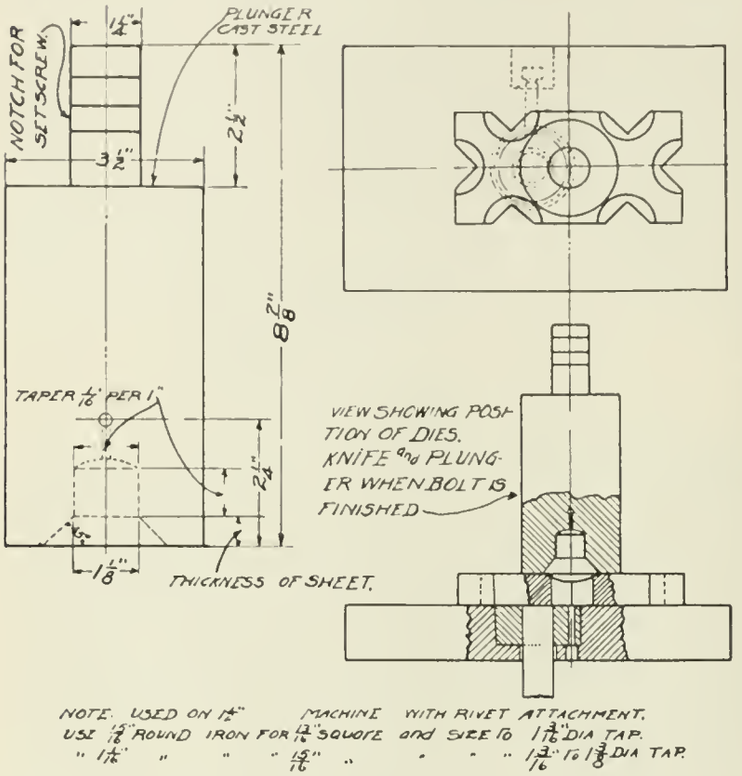
At a recent meeting of the New England Railroad Club, R. H. Rogers presented a paper on the "Trials of a Master Mechanic" in which he told some of his experiences along this line. Among his related experiences were as follows:

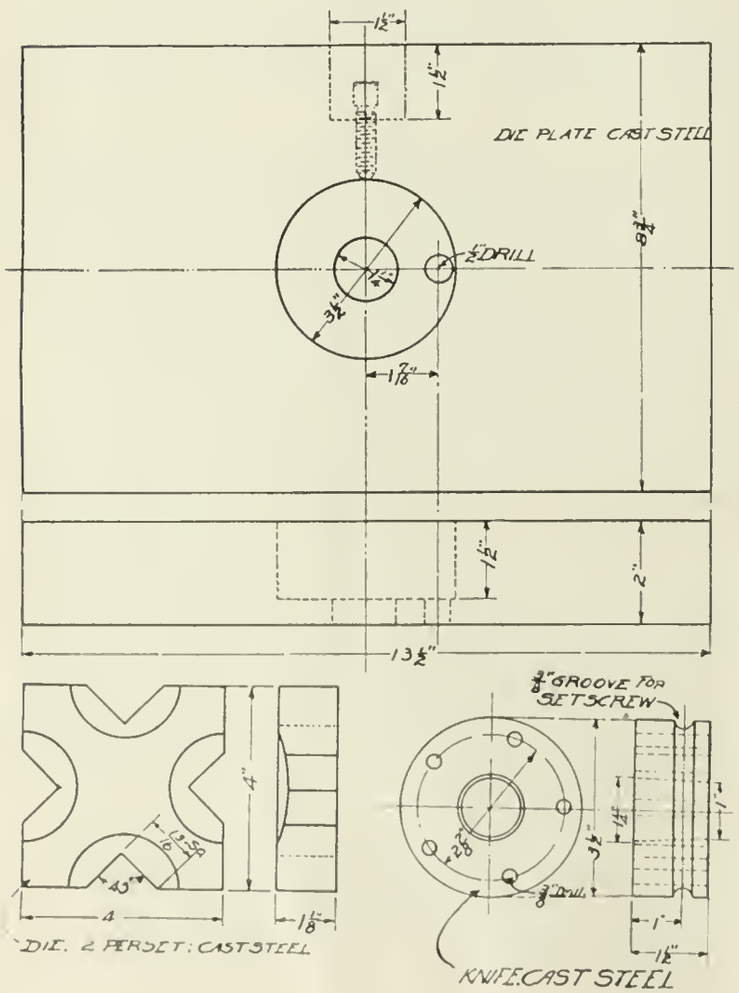
"This situation is extremely embarrassing to a master mechanic, and too often a temporary remedy is sought in robbing one engine for another; and I may as well say now, that this thing once started, never stops. I have known an engine to be laid in about two weeks waiting for some minor casting, and to be so stripped in that time, owing to storeroom shortage, that scarcely more than the boiler and wheels remained. The extremes to which a man may be driven would scarcely be credited. I worked for one road some years ago which possessed more than its share of able-bodied requisition slashers. It was not out of the accepted order of affairs to see an engine go out on an important passenger run with a lantern stuck up in the headlight case in lieu of an interior. When an engine would come on the ash-pit a gang of men would be waiting to remove the grease-cup plugs, coupler knuckles, headlight reflector, and occasionally the air hose, with which to get something else into service. Even the fire hooks and shovels, especially the latter, ran first in, first out, and when they began chain-ganging the tanks and reverse lever latches, I left for a place where the pay was less but things were not quite so strenuous. This was the only instance in my career when I voluntarily threw up the sponge. This same road, by the way, also ran out of nuts. They had plenty, of course, two and one-half and three inches, which would have filled the bill all right in some marine engine works, but none of the common sizes, seven-eighths or inch. In consequence a machinist at thirty cents an hour would spend half a day rooting in the scrap pile, and the other half tapping the few nuts he was lucky enough to find. The entire situation was distressing in the extreme."

No doubt, many railway mechanical officials have had just such embarrassing experiments as Mr. Rogers. If the purchasing department could experience some of these trials, they would more readily appreciate what the master mechanics and foremen have to contend with too often.

METHOD OF MAKING PATCH BOLTS.

In the smith shop of the Central of New Jersey is found one of the best devices for making patch bolts, for the illustrations of which we are indebted to G. W. Kelly, master smith at that plant. This device is only one of many designed in that shop since Mr. Kelly has been in charge. To the average railway mechanic the illustrations need no detailed explanation other than those set forth in the prints reproduced here.


NOTCH FOR SET SCREW
PLUNGER CAST STEEL
TAPER 1/16" PER 1"
VIEW SHOWING POSITION OF DIES, KNIFE AND PLUNGER WHEN BOLT IS FINISHED
THICKNESS OF SHEET.
NOTE. USED ON 1/2" MACHINE WITH RIVET ATTACHMENT.
USE 1/8" ROUND IRON FOR 13/16" SQUARE AND SIZE TO 1 7/16" DIA TAP.
" 1/16" " " " 15/16" " " " 1 3/16 TO 1 3/8 DIA TAP.



USE AND ABUSE OF STAYBOLTS.

EDITOR RAILWAY JOURNAL:

The safest and most effective staying for locomotive and marine boilers is a subject of the highest importance. The frequent discussions and conflicting opinions, advanced from time to time as to best methods, etc., are evidence that there is no well settled or uniform plan adopted for this important feature of boiler construction.

While it is agreed, that metal of high quality and vibratory power is necessary, there seems no unity of thought as to the best design of staybolt that would come nearest to the qualities of safety, economy and endurance. The strenuous service, the prevailing necessity of rapid heating and cooling of boilers, causing extremes of temperature, the adoption of high pressures, and the frequent failures of the constructive parts, often followed by serious results, should attract to the subject deepest thought and attention. Staybolts have a diversified mission. To the tensile strain, used in sustaining the firebox sheets in normal position, is added irregular bending forces due to expansion and contraction. The outer ends of solid staybolts are usually in a heat of less than 300 degrees, while the inner ends are struggling in a temperature between 700 and 800 degrees F. Torsional strains are also very often in evidence due to untrue alignment of holes and thus we obtain from the first day in service, forces bordering on dangerous fatigue of the metal. However premature or early breakage is often directly due to impure metal or metal not sufficiently cohesive to long endure the frequent reversal of forces. It is quite evident that to obtain reasonable endurance, iron suitable for staybolts must receive special attention in manufacture.

The solid staybolt, as usually introduced, is far from being safe or satisfactory. Breakages at best are frequent, and unless well covered by regular, capable and experienced inspection, they become a hidden source of danger; we should also remember, that while hammer sounding is somewhat assuring, it sometimes fails to direct those actually broken, and the sound test is never certain to discover bolts partially broken. The latter at times are numerous and form an unsuspected danger. The truth of this will be apparent to anyone making an inspection of the staybolts on exploded sheets. It can likewise be seen on firebox sheets removed because of being crooked or bulged.

Drilling tell-tale holes into the outer ends of solid staybolts offers neither safety nor economy. The purpose (self-warners when broken), it is true, is desirable, but they fall short of expectations. The drilling process, when well done, forms a weakness in the stay at a point where much strength and flexibility is required, but when the drill is run off on an angle or not held in line with the center of the metal, the reduction in strength becomes serious. The tell-tale or blind holes often fill with dirt so hard that the self-warning feature becomes nil. Some object to tell-tale drilling because of the inconvenience to do the work, the time it takes, and the labor and expense involved. The writer's experience is to the effect that while the expense is important, it is as nothing compared to the resultant weakness due to drilling followed by breakage, delays to equipment and expense of replacements.

Considerable thought and attention is now given to flexible staybolts. The principle at first sight strikes one as having considerable merit, but on deeper thought, the flexible action, under service conditions, will be found not only impossible, but it also involves some serious objections.

The inside end of the "flexible" is attached to the fire sheet in the usual way, the outer end of the bolt with round head resting in a prepared sleeve of corresponding lines, the whole covered by a screwed in cap. The purpose of the inventor is to the effect that the apparent loose attachment of the head to the outer sheet would respond freely to expansion and contraction movement of the inner ends without causing any vibratory strains on the body of the bolt. This, however, is an appeal to theory and does not in practice bear out expectations.

The failure of the flexible action of the head and the consequent breakages just under the head, is due principally to the immense friction between it and the sleeve, brought about by the constant strain of the stay in supporting the sheets In

other words, if the bolt is to be of any use as a stay between sheets, its grip at the ends deprives it of any flexibility other than that obtained by the vibratory action on the body of the bolt. Under the conditions it is as rigid and liable to break as the ordinary solid staybolts, and if the "flexible" develops any marked endurance as compared with the solid, it is due to a superior quality of metal, nothing else. It is plainly as necessary to cover the "flexible" staybolt by regulation inspection as the solid type, and as a matter of safety it should be done. From the style of attachment to the outer sheet, it seems impossible to detect the broken bolts by hammer sounds on the inner ends. This leads to the necessity of removing the caps on the outer sheets in order to discover those actually broken. This means considerable time and expense and not infrequently delays power. A most undesirable practice in connection with the introduction of the "flexible" staybolts is the necessity of cutting large holes in the outer sheets of the firebox for the purpose of placing the sleeves and caps. The holes are of such size for a 1-inch stay and for a sheet bearing staybolts of 4-inch centers, that it reduces the stock between edges of holes to 2¼ inches. This is an act of mutilation of the outer sheets that seems hard to justify.

The attention of the writer was called to the use of hollow staybolts. The bars from which these bolts are made have a central hole formed by being rolled in the center. This practice assures solidity, increases tensile strength, and high elasticity of the metal and prevents any possible defective welds, all being qualities necessary to endurance in staybolt service.

Having had some prior experience with the hollow bars made in this manner, and being troubled with broken staybolts on several mountain engines, due to variation of pressure followed by extremes of temperature several times a day, the undersigned had some hollow staybolts placed on surfaces giving the most trouble from broken bolts; as the solid and those having drilled tell-tales were removed, they were replaced by hollow. After about a year of this practice, it was noticed that the staybolt work at the short run terminals was very materially reduced. Prior to this, the life of the solid stay with tell-tale drilling was between five and nine months, depending on location in staying, while after this time, a little over a year, no record of a single hollow bolt being broken, although being located mostly in what was considered the breaking zone. Longer periods of experinece with the hollow bolt developed equally good results, the endurance of the hollow being remarkable under the severe conditions existing.

The great endurance shown by the hollow staybolts is attributed to several causes. The method of rolling, both at the center and outside of the bars, creates a substantial unit of the metal, assures freedom from improper welds, the pure and high quality of the metal forming the base from which the bars are rolled, tends to both strength and elasticity, the very qualities required to endure continued reversal of strains, longer than iron manufactured under ordinary methods.

The self-warning principle of the hollow staybolt is highly appreciated by those directly in touch with the power. Eliminating the hammer tests, together with the feeling that no dangerous number can be broken without compelling attention, is regarded as a very satisfactory condition, as it is a positive assurance against boiler explosions or other troubles due to broken staybolts.

It is well known that the strength of wrought iron decreases after reaching 350 degrees F. Moderately high firebox temperature causes solid staybolts to reach the depreciative heat, this being one of the causes which shortens its life. With the hollow staybolts in service, a streamlet of cool air passes through each bolt to the furnace, thus holding the metal at a lower temperature rendering both strength and endurance that cannot be obtained with the use of the highest possible grade of iron in the solid staybolt.

The greater endurance of the inner ends of the hollow bolts as compared to the solid, is very noticeable. This is due to the in-rushing oxygen through the hollow, cooling the ends of the bolts and reducing the waste of the iron due to the high heat of the fire. On engines whose fireboxes were fully equipped with hollow stays, some fault was found because it was thought too much cool air was entering the furnace, while there was some doubt of this, by those who had watched the matter closely, yet it was thought best to reduce the center holes from $\frac{3}{16}$-inch to $\frac{1}{4}$-inch, which was done. The amount of oxygen supplied through the $\frac{1}{4}$-inch openings, seemed to be sufficient to consume the gases and the assistance to combustion was quite apparent.

It is said that a few have closed the center holes at the inner ends of the hollow stays with a couple of blows of the hammer, claiming the entrance of too much cold air. This practice I am certain, should be discouraged. In order to obtain full benefits from the hollow, the air should be permitted to pass through a $\frac{1}{4}$-inch hole to the fire. This will hold the staybolt to lower temperature, add to its strength and flexibility, cause greater endurance to the inner ends, and while aiding combustion will add noticeably to the efficiency of the furnace, and afford a double advantage for the detection of breakages, should any occur, as the annular hole passes through the bolt entire, and failure at any point will immediately make itself known.

Hollow stays with both ends open will never stop up, as the current of air passing through them always keeps the holes free from sediment. Furthermore, the hollow bolt saves material and time in application and renewals, and also prevents injury to sheets in making renewals, as the operator has a central hole for his drill to follow.

We seem slow to realize, but it is no less a fact, that almost daily in some part of the country, broken staybolts are responsible for waste of property, for injury to persons, and for destruction to life.

JOHN HICKEY,
Master Mechanic.

Salt Lake City, Utah, December 23, 1907

BOWSER OIL TANK SYSTEM.

Railroads everywhere have long been confronted with the serious problem of how to store the various oils used in shops, coach yards, etc., and have experimented with many different kinds of equipment. The ordinary barrel and drum storage were long ago discarded as being inefficient, and experience has shown that gravity and pressure systems are dangerous and unsatisfactory. The system illustrated in the accompanying drawing seems to meet every requirement that could possibly be made. Equipments similar to this have been installed by many of the leading railroads of the country by the manufacturers, S. F. Bowser & Co., Inc., Fort Wayne, Ind.

BOWSER SYSTEM OF OIL STORAGE

In this installation all the oils are stored in the basement of the oil house and are drawn by means of long distance pumps to the storehouse, roundhouse and machine shop, wherever the oils are desired. Filling the tanks is a simple matter. Fill pipes running from each tank terminate in a stop cock and hose connection just underneath the platform. The supply car hose is then coupled to this fill pipe and the oil is transferred directly from the car to the tank. This saves labor and insures clean oil, since it is never exposed during the operation. The tanks may also be filled from barrels through fill pipes extending to the floor above. The pumps are of the long distance self-measuring type, i. e., they will draw the oil any distance, pumping, measuring and tallying at one operation. They discharge absolutely accurate gallons, half gallons, quarts or pints at the option of the operator, directly into the desired receptacle, thus doing away with measures and funnels.

The advantages of the Bowser system over the ordinary methods of oil storage can be summarized as follows: Centralization of all the oils, no matter in what part of the yards or shops they are used, thus reducing the labor required for attention to the oils. Facility in filling the tanks, doing away with barrels altogether, or returning them for credit at once. Absolute cleanliness around the oil house, all the oil being in tanks at all times, and not around on the walls or floors. Absolute safety, the entire absence of oily floors and vapor-laden atmosphere, removing the possibility of dripping, leakage and evaporation. An accurate record of all oil drawn, tending to reduce the amounts used and preventing waste from careless handling.

A NEW SIGNAL.

The Garrett Bridge Signal has been put upon the market by the Signal Department of The Railroad Supply Company after a series of long and practical experiments with various sized signals on a large western railroad. Accompanying cut No. 1 shows the signal as installed on this road with signal at clear. The object of the signal is to give warning to locomotive engineers when approaching trestles in case of dangerous high water at the trestle, or in case a trestle is or has been on fire. This is accomplished successfully by this device, as follows:

A tarred rope of great tensile strength is passed over all wooden parts of the trestle that are liable to burn. As soon as the rope, which easily catches fire, begins to burn the signal goes to danger.

Referring to cut No. 3, showing the Garrett Signal Controlling Mechanism—parts of casing and covers removed

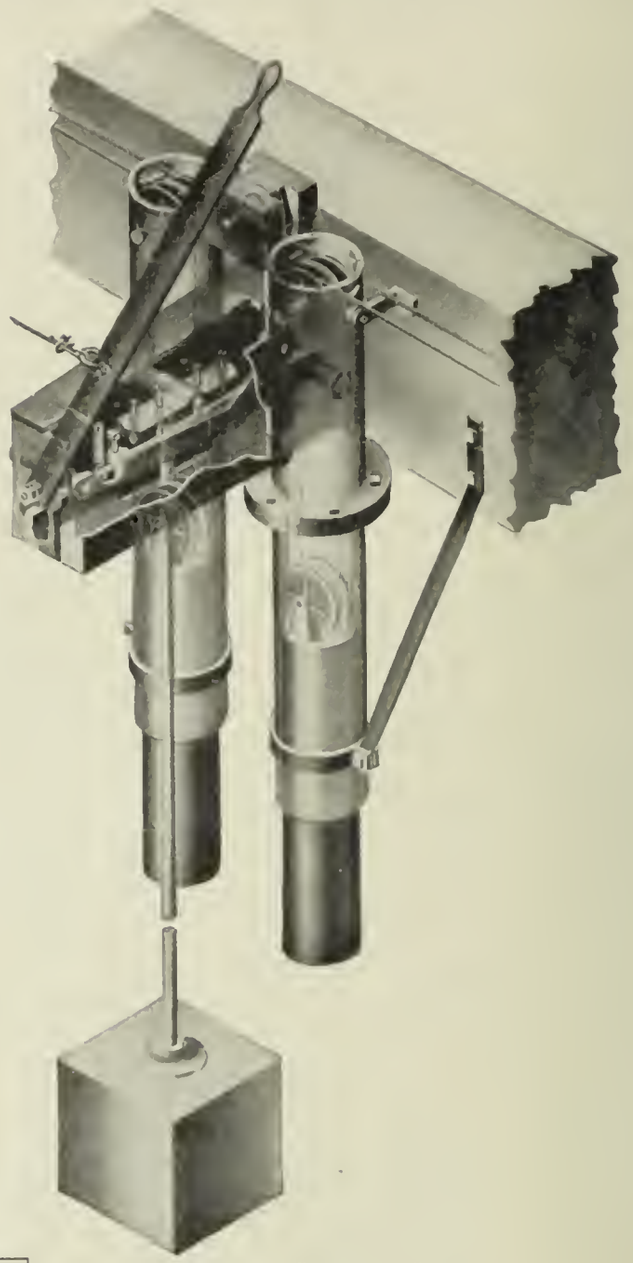


FIGURE NO. 3.

showing mechanical construction—it will be noticed that the rope passes through the top and underneath the heavy weights, which releases the lever from which the mechanical signals are controlled. Ordinary contraction and expansion is provided for by means of compensating weights within the two cylinders. The tilting or raising of the float also trips the signal lever and allows the signal to go to danger. In ordinary cases where a high mast semaphore signal can be seen from both directions a double arm signal, as shown in the illustrations, is used. In places where a view approaching the trestle is obscured a high mast semaphore is used on both sides of the trestle. Where it is desired to locate the signal some distance from the trestle electrical semaphores or disc signals are employed, these being connected with the signal controlling mechanism in a similar manner as the mechanically operated signals. The Railroad Supply Company has just issued Section No. 5 of the signal department's new catalogue, which gives full description of this device. It is claimed that the signal has been in practical operation for about one year during which time its entire practicability has been proven to the satisfaction of the railroad company.

This device is entirely mechanical and of such con-

FIGURE NO. 1.

struction as to require very little maintenance. For this sort of protection it is, therefore, better than electric signals in that the present automatic signals cannot be made without special arrangements to give indication of high water or even fire, unless, of course, the fire breaks a bond wire or rail. Cost of same is also less than that of the electric signals.

AMONG THE SUPPLY FIRMS.

The Lima Brake Shoe Co. has been organized at Lima, Ohio, by B. F. Thomas, F. A. E. Thomas, W. C. Bradley, J. J. Ewing, and others.

F. J. Cole formerly mechanical engineer, has been made consulting engineer of the American Locomotive Company, office at Schenectady, N. Y.

The Curtis & Curtis Co., of Bridgeport, Conn., has completed an addition to its shops. This company manufacture pipe cutting and threading machinery.

The H. W. Johns-Manville Co. of New York, has issued an attractive catalogue on the popular "Linolite" manufactured by it. Linolite is advertised as "a yard of light to a yard of space."

The Falls Hollow Staybolt Co., of Cuyahoga Falls, Ohio, has issued a handsome calendar for 1908, on which is an excellent reproduction of "The First Days of Spring," the famous painting of Franz Charlet.

The Patterson Tool Co., of Dayton, Ohio, is advertising extensively a popular sash retainer and anti-rattler for passenger coaches. The description and illustrations indicate that the device is one that will take well with the public.

The Murray Iron Works Co., of Burlington, Iowa, has favored us with a copy of its illustrated catalogue, descriptive of the Corliss engines turned out at the company's plant. The booklet also contains fine illustrations of the plant.

The Westinghouse Machine Co. has issued a neatly illustrated book on "The Westinghouse Storage Battery Auto-Truck" for industrial railways. The book contains several illustrations of this new device which should find favor wherever handling heavy machinery is necessary.

NEW EQUIPMENT ORDERED.

Statistics compiled show that there were built in Canada and the United States in 1907, 286,645 cars, of which 284,188 were freight cars and 5,457 were for passenger service. About 9,429 of the total were for export. The locomotive plants of the two countries report the construction of 7,362 locomotives during 1907, an increase of 11 per cent over the production of 1905. Canada turned out 264 locomotives. There were also 330 electric locomotives turned out during the year. As to the average cost of equipment, freight cars for last year averaged $1,100 each, making a total of $312,607,000 expended, and the passenger equipment averaged $8,500 each, or $46,384,000 on the whole. The average cost of locomotives was $16,000 each. It is thus figured that the roads expended $477,000,000 on cars and locomotives during 1907.

NEW CARS AND LOCOMOTIVES.

The L. & N. is having 500 freight cars built by the company's shops at New Decatur, Ala.

The Nickel Plate recently placed orders for twenty locomotives with the American Locomotive Co.

What is said to be the first locomotive built in Brazil, was turned out at Sao Paulo, by the Mogyana Railway.

The Canada Foundry Co. is building three locomotives for the J. D. McArthur Co., railway contractors at Winnipeg, Man.

The San Pedro, Los Angeles & Salt Lake is receiving a number of locomotives built by the Baldwin Locomotive Works.

The American Locomotive Company of Richmond, Va., has just set up eighty locomotives and two steam shovels for the South Manchurian Railway of Dalny.

The Hocking Valley has reserved space with the American Locomotive Co. for the construction of ten switch and two passenger engines, but contracts have not been let yet.

Benj. F. Freeble, auditor of the Monongahela road at Pittsburg, Pa., has patented a passenger car, the floor of which has a rotary movement which permits it to remain in the same position even though the car turns over on its side.

It is reported that the Great Northern has placed orders for four 100-ton electric locomotives to be used in the road's three-mile tunnel under the Cascade Mountains in Washington. Each electric motor will be equipped with four motors of 325 horsepower. The driving wheels will be 60 inches in diameter. The motors will receive a current of 6,600 volts at a frequency of twenty-five cycles and will be capable of hauling 1,000 tons on a heavy grade.

Consul James H. Worman, of Three Rivers, reports that the Grand Trunk Railway of Canada has placed orders for ninety new locomotives, involving an expenditure of nearly $2,000,000, of which about one-fifth will go to the United States. These locomotives will be built in time for the movement of next season's wheat crop. A Toronto concern will furnish twenty simple road engines, a Longue Pointe machine company thirty of the same class and twenty Richmond compound consolidated engines, while ten switch engines and ten ten-wheel passenger locomotives will be furnished by the Baldwin Locomotive Works of Philadelphia.

MECHANICAL NOTES.

The Santa Fe has plans for a large storeroom to be built at Temple, Tex.

The Delaware, Lackawanna & Western will soon be in the market for new shop equipment.

The Galveston, Houston & Henderson has planned to expend about $15,000 on shop improvements at Galveston.

The citizens of Sacramento, Cal., have raised a bonus to purchase 90 acres of ground for the main shops of the Western Pacific.

The shops of the Canadian Pacific at Vancouver, B. C., have just been equipped with an electric power plant of 225 horsepower.

The Federal government has filed suit against a number of roads for alleged failing to properly observe the safety appliance law.

The Georgia, Florida & Alabama has purchased 20 acres of ground at Bainbridge, Ga., on which to erect shops, roundhouse, coal chutes, etc.

The roundhouse, together with a number of locomotives of the L. S. & M. S. at Elkhart, Ind., suffered a loss by fire last month to the extent of about $125,000.

The citizens of San Angelo, Tex., are making an effort to secure the main shops of the Kansas City, Mexico & Orient which are to be built this year or early in 1909.

The Intercolonial has contracted for division shop buildings at Rivierre du Loup, Que., which are to cost about $90,000. The company also proposes to erect shops at St. Boniface.

The Texas state road has completed surveys between Rusk and Palestine, Tex., about 32 miles, and about half the proposed extension is graded. J. W. Wright, of Rusk, Tex., is president.

John Pasco, of Tampa, Fla., is chief engineer of the Tampa Northern which is building from Tampa to Thomasville, Ga. Grading and track laying has been completed out of Tampa some distance.

The Washington, Westminster & Gettysburg is the name of a proposed line to be built between Washington, D. C., and Gettysburg, Pa., about 90 miles. Walter Altee, of Baltimore, Md., is chief engineer.

The Central Railway of Brazil, a government line, is to expend between $3,500,000 and $5,000,000 on equipping its suburban branches with electric power. The general offices are at Rio De Janeiro, Brazil.

The Port O'Connor, Rio Grande & Northern has completed the grade between Yoakum and Port O'Connor, Tex., 90 miles, and track laying has commenced. Branch lines and further extensions are to be made this year. W. I. Allen is general manager; office at Victoria, Tex.

On January 20th, the Florida Central was opened between Thomasville, Ga., Roddenbery, on the Georgia-Florida State line. The Railway Journal has been advised that work on the road in Florida is being pushed as rapidly as possible. J. L. Phillips of Thomasville is president.

At a meeting of the American Institution of Electrical Engineers held in New York City, in January last, the following statement was made: "If all the railways in the United States were today operated by electricity the aggregate cost of operation, which, in 1905, amounted to $1,100,000,000, would be reduced by about $250,000,000."

An American consular officer located in the southern part of Europe forwards the name of a concern who desires the addresses of American manufacturers of cast-iron tubes. As the tubes required are of large size, and the contract an important one, the firms must be of the highest standing. Information as to addresses can be secured from the Bureau of Manufactures at Washington.

A report has been received from an American consular officer in India stating that a new stystem of supplying water to a city in his district has been submitted by the chief engineer of the city in question. This system includes the construction of an elevated steel tank. Complete details regarding the proposed plans may be obtained from the Bureau of Manufactures at Washington, D. C.

An American consul in Africa forwards a report in which he states that tenders will shortly be invited for a considerable quantity of railway equipment and also for a 50-ton electric crane for use on a wharf. Further information in regard to this material with illustration showing the type of crane used, may be obtained by manufacturers of such equipment who will guarantee to submit bids, from the Bureau of Manufactures at Washington, D. C.

The Fargo Call of Fargo, N. D., publishes the following item: "Among the rumors in railroad circles one which has been current for several weeks is to the effect that the Great Northern Railway Company is to take over the Dilworth shops and roundhouse, and the N. P. will change the division headquarters to Brackett, a station just this side of a division point, making the division extend from Staples to Brackett and thence to Mandan.

Consul-General Willard D. Straight, of Mukden, China, reports that the local press states that the Railway Administration office of the Residency-General at Seoul, Korea, has now completed its plans for the construction of a steel bridge across the Yalu River to connect New Wiju with Antung. The cost of the bridge is estimated at $1,500,000, and work on it is to be commenced in March or April, 1908. He suggests that American manufacturers of bridge supplies might do well to correspond with the office above mentioned.

Consul-General A. G. Snyder, of Buenos Aires, Argentine Republic, reports that the city of Buenos Aires has called for tenders for the construction of two lines of the underground electric railways which form part of the system proposed and approved by the Municipal Commission, and for the leasing of the operation of said lines upon their completion. The requirements of said bids can be obtained by interested parties from the office of the Secretary of Public Works of the Municipality at Buenos Aires. Bids will be received until May, 1, 1908.

The Isthmian Canal Commission, Washington, D. C., will receive proposals until February 6, 1908, for the supplying of a material handling power plant, consisting of (1) boiler-room equipment, including boilers, fittings, smoke-box, smokestack, boiler-feed pumps, feed-water heater, fuel economizer, fan, piping, damper regulator, etc.; (2) engine-room equipment, including generators, condensers, vacuum pumps, circulating pumps, piping, electric crane, exciters, rotary converters, transformers, lightning arresters, switchboards, regulators, station voltmeter, portable instruments, etc.

The council of the Cape Town Corporation invite proposals up to March 31, 1908, for both or either of the following projects: (1) The construction and working of a railway up Table Mountain. (2) The erection and conduct of a suitable hotel at the terminus of the said railway. The council is prepared to consider a proposed concession for a term of approximately twenty-five years. Particulars and conditions may be obtained at the office of the town clerk, Cape Town, South Africa. Parties forwarding tenders must state their proposals in writing and submit the same under seal and indorsed "Table Mountain Railway and Hotel," at the office of the town clerk.

Report from Preston, Ont., states that the Preston Car & Coach Co. of that place, has erected a plant for the manufacture of passenger equipment for steam and electric lines and is rebuilding a number of passenger cars for the Temiskaming & Northern Ontario. The company has eight and one-third acres of land with spur tracks to the Grand Trunk and Canadian Pacific Railways and has laid foundation for a three-story L-shaped building with a frontage of 200 feet and a depth of 140 feet, the three floors to be used respectively as a blacksmith and machine shop, mill and cabinet shop and by the upholstering and finishing departments. A car construction shop to be built in two sections each 37 by 200 feet will also be erected.

CONSTRUCTION AND IMPROVEMENTS.

The Missouri, Oklahoma & Gulf is being located to Denison, Tex. Wm. Kenefick is president.

The Ohio Electric Railway has opened through service between Columbus, Ohio, and Richmond, Ind., 112 miles.

The Pennsylvania has about completed its tunnels under Manhattan after three years continuous construction work.

The Idaho & Northern is building from Enaville to a point near Murray, Idaho, 33 miles; also a 15-mile branch line is to be built.

The Idaho & Washington Northern has completed 50 miles of road and is now open between Grand Junction, Wash., and Newport, 43 miles.

The Baltimore & Ohio has completed a new line between Mt. Braddock and Pechin, Pa., and is double-tracking Mt. Braddock and Connellsville.

On January 16th, the Guatemala government opened the Guatemalan Railroad, which has just been completed between Port Barrios and Guatemala City.

The Kansas City, Mexico & Orient has completed its line between Wichita, Kan., and Dill City, Okla., 212 miles, and will be operating to the Texas line before spring.

The Great Northern has purchased the Montana Central, which extends from Great Falls to Butte, Mont. The M. C. has been controlled by the G. N. for several years.

The Southern Pacific has purchased 6,500 tons of 75-pound rails from Russian markets for its Mexico extension, the road now being graded almost to Guadalajara, Mex.

General Bernardo Ade Palafox of Mexico City is chief engineer of a proposed road to extend from Santa Cruz to Vigia Chico, Mex. Plans have been about completed ready for construction.

The Grand Trunk Pacific has awarded a $5,000,000 contract for building 126 miles of that road from a point six miles east of Edmonton to Wolf Creek, Canada. Work is to be started immediately.

The Victoria, Vancouver & Eastern, is in course of construction from Curlew to Vancouver, B. C., and was built 20 miles west of Keremeos, B. C., the total length of construction for last year being 94 miles.

The Montana extension of the C. M. & St. P. has been completed to Marmath, Mont., 200 miles west of the Missouri River. The road is to reach Miles City, Mont., before March 1st, and Butte by June 1st.

The Spokane & British Columbia, which is building from near Grand Forks, B. C., has located its line to the Spokane River along which it is to follow to Spokane, Wash. Grades have been completed to Republic, Wash.

President R. E. Strahorn of the North Coast Railroad, office at Spokane, Wash., states that construction work is to be resumed in the spring. This road is building from Spokane to Seattle, via North Yakima and the Cowlitz Pass.

The Northern Pacific has completed the construction of 22 miles of the branch from Culdesac, Idaho, to Grangeville, Idaho, having laid steel into Vollmer. The entire extension from Culdesac to Grangeville, 55 miles, will be completed next spring or early summer.

The Florida East Coast's Key West extension has reached Knights Key, 109 miles from Miami, Fla., and 47 miles from Key West, the proposed terminus which is expected to be reached in about a year. This will place trains within 90 miles of Havana, Cuba, to which city they will be ferried.

The Panhandle Short Line was reorganized at Hereford, Tex., last month, with the following officers: W. G. Ross, president; G. W. Irwin and J. H. Ransom, vice-presidents; A. D. Goodenough, general manager; offices at Hereford. The details as to proposed construction are not given out yet.

From 7,000 to 10,000 men have been engaged in the construction of the Coast extension of the Chicago, Milwaukee & St. Paul in Idaho and Washington. Much of the grading in Washington, Idaho and Montana is nearing completion. The cost of the Milwaukee through Eastern Washington will be $40,000 a mile.

E. P. Spaulding, vice-president and general manager of the Idaho Northern Railroad, announces that work on the line to connect with the Oregon Railroad & Navigation Company tracks near the mouth of the Coeur d'Alene River and following along that stream and Pritchard Creek to Paragon Gulch, 6 miles beyond Murray, Idaho, will be pushed forward in the spring with the present construction force increased to 1,000 men.

In the construction of the Portland & Seattle road between Spokane and Vancouver, Wash., from eight thousand to ten thousand men have been employed during the greater part of the year. On the line between Texas Ferry, on the Snake River, to which the line has been constructed from Pasco and Spokane there are now five thousand men employed.

The Pullman, La Crosse & Columbia Railroad has field articles of incorporation in Washington with a capital of $1,500,000 to build a railroad from Pullman by way of La Crosse to a point on the Columbia River. The incorporators are J. O. Staats, H. M. Greene, J. H. Clarke, T. H. Shobe, E. S. Knowlton and J. S. Shrock of La Crosse, and J. B. Taggart of Hay.

The Denver Steamboat Construction Co. has been organized at Denver, Colo., to complete the Denver Northwestern & Pacific through to Salt Lake City. The company is capitalized at $1,500,000 with the following directors and officers: D. C. Dodge, Henry M. Porter, Lawrence C. Phipps, Thomas F. Walsh, John F. Campion, Charles Boettcher, Charles J. Hughes, Jr., William Byrd Page and Samuel M. Perry. The officers are: D. C. Dodge, president; Thomas F. Walsh, vice-president; John F. Campion, treasurer, and Samuel M. Perry, secretary.

TRAFFIC AND FINANCE.

The stockholders of the Cincinnati, Hamilton & Dayton are to hold a meeting on February 7th, when definite steps are to be taken in the reorganization of the company.

The Texas Supreme Court on January 8th, rendered a decision which upholds the validity of the anti-ticket scalping law of that state. This ruling practically kills the railway ticket brokerage business in Texas.

The management of the Santa Fe has directed the local agents along the system to deposit the company's daily receipts in the local banks in order to help maintain public confidence. It formerly has been the custom to remit daily to the company's treasurer.

The United States District Court at Dallas, Tex., has ruled that the Texas Railroad Commission has no authority to reduce rates within that state on sleeping car berths.

The management of the Chicago & Alton has ruled that passengers will not be allowed to board trains without first securing tickets, that is no cash fares will be accepted on trains.

H. W. Clark, the new vice-president of the International & Great Northern, has given it out that all employes have been instructed that in cases of accidents and all "open" matters, the press should be given complete details.

Attorney-General Hadley of Missouri, has figured it out that the roads of that state are earning more money net with the two cent rate than they did under the three cent rate with passes. Politicians are always handy with figures.

The governor of Tennessee has requested the presidents of the roads in that state to get together and agree upon lower passenger rates and thus save him the necessity of calling an extra session of the general assembly to take action.

Under the pension system of the Grand Trunk Railroad, which became effective January 1st, every employe serving fifteen years is entitled to receive a minimum of $200 per annum. Men disabled in the service or dismissed without cause are also provided for.

Some Texas paper has given the world this information: "George Fitch has let it be known that if he ever dies rich he proposes to leave $2,000 to a polite railroad baggageman, if he ever finds one, in order to encourage the breed. Everybody will hope that Mr. Fitch will be successful in his efforts to accumulate wealth."

President Finley of the Southern Railway has issued an order stating, that in view of the falling off in business, and the decrease in revenues, the management of the Southern Railway Company has determined, as a step in its program of reducing expenses, to put into effect, as of February 1, 1908, a reduction of ten per cent in the pay of the president, vice-presidents and the other general officers, and their office forces.

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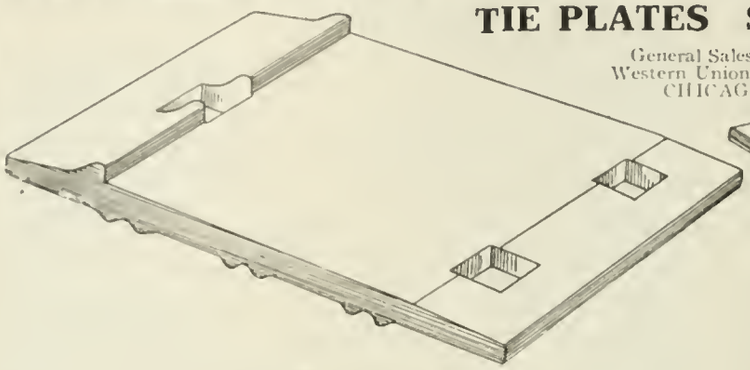

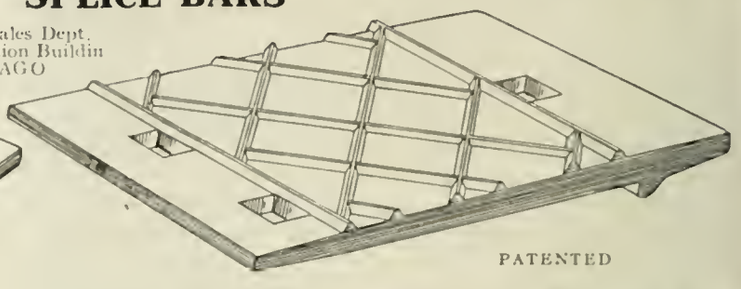

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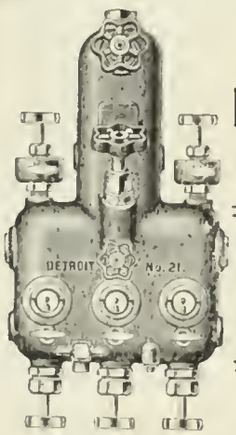

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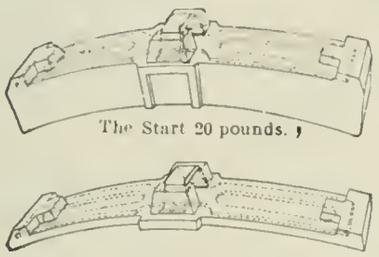

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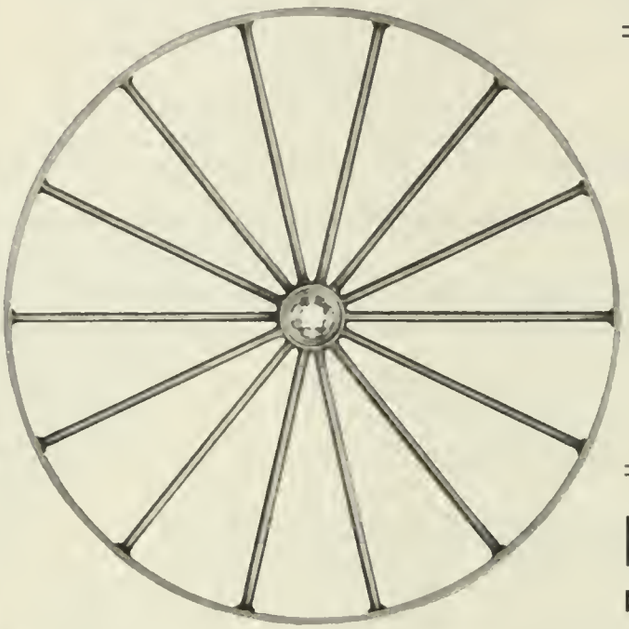

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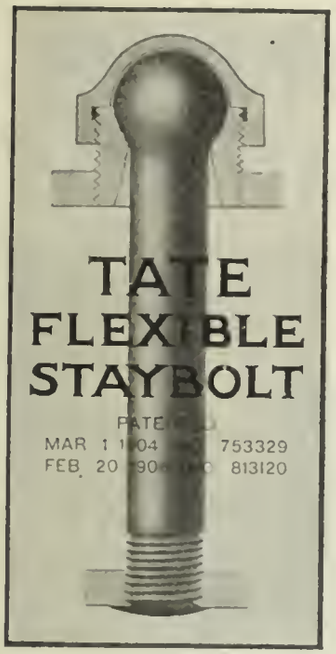

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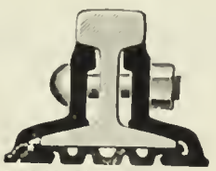

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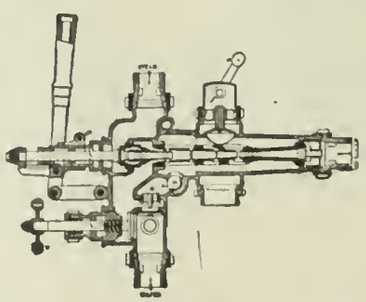

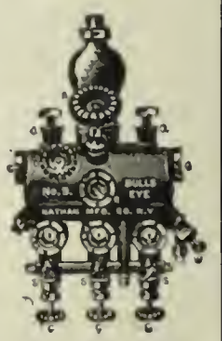

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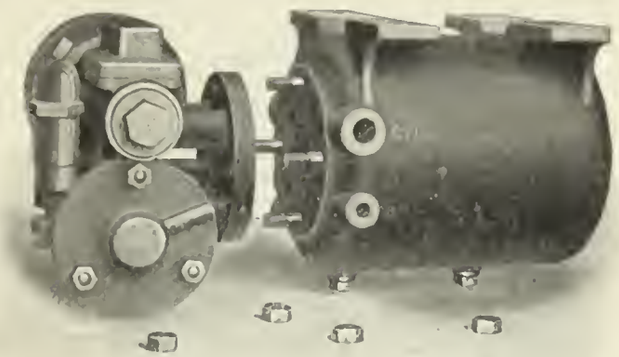

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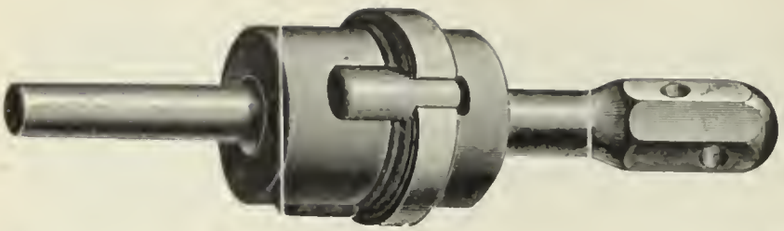

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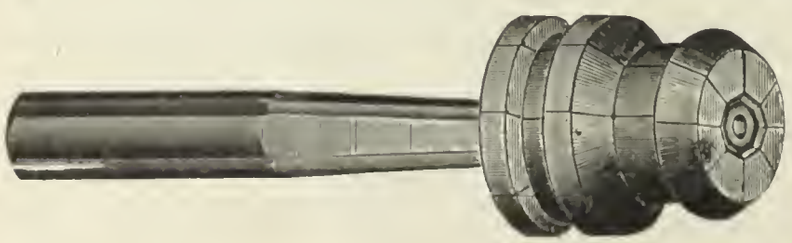

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Entered as Second-Class Matter October 22, 1906, at the Post Office at Chicago, Illinois, under Act of March 3, 1879.

W. E. FAITHORN - - - - - Business Manager
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THE WEST.

Address by Hon. F. C. Dillard before the Traffic Club of Chicago, January 30, 1908.

Were one called on to write the history of the world in a single theme, or, to put it differently, were he called on to write upon a single theme which more than any other would embrace the history of the world, I am by no means sure he would not select as his subject, "Traffic"; for while the pages of history are martial with the roll of drums and the tread of soldiers' feet, a nation's inner life, its progress, its achievement, its worth to the world, are read not in its battles, but in its commerce.

On this occasion, in this presence, in this city, which, if I may be allowed a very bold figure, is the traffic heart of the West, it is peculiarly appropriate that some one should respond to the sentiment "The West," and that his remarks should be directed more particularly to the growth of "The West" as already brought about, and to be yet further developed by its traffic.

We use the term "The West" tonight as it was quite generally used years ago, designating what has later come to be called the "Middle West."

JUDGE F. C. DILLARD,
Interstate Commerce Counsel, Southern Pacific System.

In the latter part of the eighteenth century commenced a strong movement of population into Ohio, the eldest of the Western States. This was composed of that sturdy Puritan stock which sought the bleakness of Plymouth Rock and the dangers of an unknown and savage country rather than yield their freedom of religious belief or worship, of the Quaker, who, though one of the chief tenets of his faith was the denial of the right to go to war, hesitated not to take arms against the gloomy forest and unbroken wilderness; of the descendants of those cavaliers who, casting their fortunes with the fortunes of the House of Stuart, after it fell, brought their refinement of manners, their recklessness of life, their dare-devil courage to the task of bringing a new land under the sway of civilization. With the commingling of so many hardy strains of blood, it is no wonder that these early settlers of the West began very soon to turn the forest and the prairie into the field and to build huts and hamlets in dim prophecy of palatial residences and great cities.

Prior to the advent of the railway, the great agency in developing the resources of the West and laying the foundation of its commerce was the water highway. In the first quarter of the last century steamboats, rude, awkward, slow moving, often burned to the water's edge, often sent to the bottom by snags, caricatures of the magnificent ocean vessels or lake or river steamers of today, but carrying the nascent commerce of this mighty West, began to ply the waters of the Mississippi and the Ohio carrying to market the scanty, raw products of the West,

and returning such manufactured articles as it consumed. The importance of this traffic in the upbuilding of the West is shown in the way in which the building of towns followed the opening of navigation and was circumscribed by it. But, notwithstanding the development of river commerce, in places remote from water highways there could be but little traffic. But the coming of the railway was to change all this. It was to cross mountains no waterway could scale, reach out-of-the-way places no canal could find, and bring the remotest spots into touch with the world's markets.

In this day it is amusing to note that in 1822, mark you! only eighty-six years ago, a period less than the life of many men now living, when John Stevens was applying to the legislature of Pennsylvania for a charter for a railway, a correspondent of one of the newspapers wrote it, in all sober earnest, to ask, "What is a railway?" With equal gravity and equal sincerity the editor replied that he did not know, and invited some other correspondent to make reply. But so far as I am advised, no correspondent was found sufficiently informed to answer the question, and this I do know, a commission was sent to England to find out what a railroad was. How different from today, when the hustings and legislative halls furnish so many men who not only know what a railway is, but can solve off-hand the most intricate operating and traffic problems.

In 1822 people did not know what a railway was, and it was not until about 1850 that they began to adequately realize its functions. It must be pleasing to one who lives in the "West," and especially to one living in Illinois, to reflect that the people in this state were among the first to grasp the meaning of this new servant of commerce. In 1838 the first railroad track was laid in Illinois. Owing to the low state of the public treasury, little was done in railway building until 1850, but at that time it began in earnest, and with it a new era of progress and prosperity. As railway building spread the habitations of men dotted the land; fields of nodding grain rippled in the summer breeze; autumn garnered the golden corn, and the West became the chief granary and storehouse of the world.

And what of this West today? I know that detailed statistics are wearying, and I shall not tire you with them, but if I may do so without being tedious or taxing your patience I will refer in a very general way to just a few facts written in figures illustrating the advance of this whole land and particularly the West. The West has an area of something more than three-fourths of a million square miles, and had in 1900 a population of over twenty-six (26) millions, or more than one-third of the population of the Union. In 1790 the center of population was twenty-three (23) miles east of Baltimore. By 1900 it had moved westward five hundred and nineteen (519) miles, until it was only six miles from Columbus, Ind. Speaking in round numbers, in the Union there are invested twelve billions, six hundred millions of dollars in manufacturing industries, employing nearly five and one-half millions of wage-earners, and with an annual output of the value of fourteen billions, eight hundred millions of dollars. More than one-fourth of this vast capital is invested in the West, more than one-fourth of these wage-earners here find employment, and the proceeds of more than one-fourth of this great output flow in golden stream into the coffers of its people.

In 1906 the West produced seventy-eight (78) per cent of all the oats, sixty-six (66) per cent of all the corn, and seventy-seven (77) per cent of all the wheat, of the Union. In 1906 the net tons of freight carried through the Sault Ste. Marie Canal was over fifty-one (51) millions, which was about equal to the combined foreign tonnage of Liverpool, London and New York.

In 1830 there were but twenty-three (23) miles of railway in the United States; in 1850 there were but nine thousand (9,000) miles; but by 1880 there were ninety-three thousand (93,000) miles. Last year there were two hundred twenty-four thousand (224,000) miles, and of this mileage the West had over ninety-two thousand (92,000) miles, or practically as much as the whole mileage in the United States twenty-seven (27) years before. Its mileage is forty-one (41) per cent of all the railroad mileage of this country, and sixteen (16) per cent of that of the world.

In 1812 to move a ton of freight from New York to Lewiston, almost entirely a water route, cost forty (40) dollars, and to carry it by the all-land route from Philadelphia to Pittsburg cost one hundred and twenty-five (125) dollars. In 1825 freight could be moved through the Erie Canal from Buffalo to New York for four (4) cents per ton per mile.

In 1855 the average freight rate by rail in the East was two and fifty-five one-hundredths (8.0255) cents per ton per mile. I have had no figures at hand for the West earlier than the seventies, and not even then for the West as a whole, but figures compiled from the charges of sundry western roads show that their average rate at this time was two and thirty-five one-hundredths (8.0235) cents per ton per mile. Now the average throughout the Union is practically three-fourths (¾) of a cent per ton per mile. Do you say: There has been little reduction in the freight rate for some years, and that at one time it was lower than it is now? I answer, "True, but have you stopped to think why this is so? Have you thought that the very fact that there has not been such reduction may be indicative of good?" Since 1897 there has been a marvelous advance in the price of all commodities and of labor. This has necessarily affected the operation of the railways, so that reduction of freight rates has been impracticable. But if high prices of material and labor entering into the construction, maintenance and operation of the railway have stood in the way of the reduction of freight rates it is an economic truth we may well heed, that in normal times high prices of commodities when brought about by the stimulus of demand, tell of active commerce and prosperous times, while low prices tell of glutted markets or timid and fleeing capital. But am I told that it is to the interest of the West, and, for that matter, of the commercial world, to have low freight rates? I answer, yes, so long as the rate is sufficiently remunerative to pay a fair and secure return on invested capital, and to encourage the building of new roads and the betterment of roads already built. A rate doing less than this would be no blessing, but quite the contrary. It would restrain the extension of the means of handling traffic and retard commerce. In so far as the idea, condition of a rate at once so low as to move the traffic freely and cheaply, and so high as to properly maintain existing railways and invite the building of new ones may be attained, it must be brought about by the working of economic, and not statutory laws.

Do not misunderstand me. I would not willingly be numbered with those who make indiscriminate attacks upon our laws, or intemperate assaults on those charged with the duty of enforcing them, but this I do say: If the day ever comes when calm and discriminating criticism of any law may not be had without the charge of treason being preferred, when a dispassionate discussion of the acts of those who have the making of the laws or the interpretation or enforcement of them may not be had without a charge of *lese-majesty*, we may well fear for the republic. Americans, of all people, ought to remember that this government was formed as a protest against unjust laws and the harsh enforcement of them.

In a spirit then, I trust, entirely fair and judicial, as one who respects the laws of his country, who loves her institutions, who venerates her past, who desires to see no handicap to her progress, I wish to give utterance to what I shall now say: I think no candid man can deny, no patriotic man can but regret, that for a few years past there has been too widely prevalent a feeling opposed to all corporate enterprises, especially to railroads, and bitter against organized capital. As the outgrowth of this feeling there have been placed upon the statute books too many laws subversive of economic principles, harsh toward enterprises in which large capital is invested, and passing beyond the domain of regulation into the domain of oppression. No better proof can be given of this then the numerous decisions that are constantly rendered by courts, both State and Federal, declaring acts unconstitutional because depriving him against whom they are directed of rights guaranteed by State or Federal government. When we remember that it is only a few out of many unjust laws that courts can reach on the ground of unconstitutionality; that in the vast majority of cases where public policies are to be declared or property rights regulated the question is one of policy for the legislature alone, we may well be appalled at the number of statutory enactments which hamper trade. I do not say that many of the laws which have been enacted may not have had their origin in an honest desire to correct a real evil, but what I do say is, that the day and hour has come when many, very many, of them have passed far beyond the point of correction, to the point where they stifle commerce and discourage worthy endeavor.

One reason why so many laws of this kind have found their way into the statute books, I think is this: Fifty years ago the West stood, inviting immigrants within its borders. As the population in the Eastern States began to grow more dense, the unsuccessful and dissatisfied could move west, purchase cheap virgin lands, begin life again, and silence discontent in new effort. Now, everywhere, all the desirable public lands, subject to settlement, have been occupied. The pressure of population has become greater and men constantly jostle each other in the struggle for existence. It is now, as it always has been, and always will be until the millennial day, the strong will succeed while the weak fail; and too frequently the penniless, the home-

less, the unsuccessful, see in him who has prospered an enemy and oppressor. That the weak and helpless should be protected and their every right safeguarded all right feeling men will gladly admit. But too often the mutterings of those made discontented, and frequently unreasonable, because success has not attended their efforts, the complaints of the ignorant and prejudiced, the demands of those who hope to reap personal profit from restrictive legislation, fall upon the ears, attract the attention and direct the course of ambitious men striving for popularity and seeking political preferment. I feel assured that these influences have had too much to do with shaping many of the laws which now hinder our commercial progress It is preeminently a time for patriotic men, for wise men, for men who will tell the people that there is no reason for battle between the rich and the poor. That he who, at the end of hours of toil receives his little pay as the embodiment of the sweat and labor of the day, is a necessary factor in society. That likewise he who invests a fortune in large undertakings, who directs great enterprises, who manages ships and railroads, or banks or great manufactories or trade emporiums, is a necessity in every complex civilization.

Shall we despair? Are we, then, in a night of impending evil for which there is no dawn? I do not believe it. This country has come through many trials; it has stood the shock of a civil war, so awful that it would have seemed enough to disrupt the government forever. More than forty years have passed since the contending forces closed their struggle at Appomatox, and today the Union is more closely welded than it was prior to 1861. The exultation of victory of the one, the bitterness of defeat of the other, are forgotten. Grant and Lee; Thomas and Jackson; Sheridan and Stuart, are our common glory, and the land where crossed their knightly swords is still our common heritage, our undivided country.

If through so great a shock of arms our country came unscathed, if after it the bonds of Union were more closely drawn together, I cannot but believe that this economic warfare, which is now waging, will end in bringing into closer fellowship all the people of our Union; will end in a juster appreciation of the rights of every class of society; will end in expunging from our statute books all harsh and oppressive laws; will end in the full protection of property rights and the preservation of both individual and commercial freedom. I think it will not be long before "night's candles have burnt out and jocund day stands tiptoe on the misty mountain tops." I think it will not be a long time before this magnificent West, with an ever increasing population, with ever growing wealth, with manufactories constantly multiplying, with agricultural products becoming greater year by year, by lake and canal and rail will seek with its products, in ever expanding volume of trade, the ports of our country and thence in the "ships that go down to the sea" the markets of the world; and that in the providence of God peace and prosperity will abide with a contented and happy people in this goodly land long after "you and I shall have melted like streaks of morning cloud into the infinite azure of the past."

RADICALISM WANING—BETTER TIMES AHEAD.

The letter below from R. M. Bachelle, general agent of the Santa Fe System at St. Joseph, Mo., is from a man of fine intelligence and deliberative thought, and states a position in harmony with our opinions. The situation has been concisely and clearly given. His sentiments are as follows:

St. Joseph, Mo., February 6, 1908.

The wave of radicalism sweeping over the country to its detriment, the adverse railroad legislation, the intemperate abuse of railroads, have, all combined, made investments in railroad securities appear undesirable and, therefore, the railroads have been unable to secure sufficient money with which to enlarge and improve their facilities. No sane man can doubt the accuracy of this statement.

No business man of this country will for a moment make the statement that we have enough railroads, nor will he admit that the present railroad facilities are sufficient to handle the ordinary and average business of the country If the business of the country were normal "blockades," "delays," "congestions," would be the words employed to describe the transportation situation. Factories would close down waiting for cars and traveling men be called in because of inability to ship out orders already on hand. Thus it has been for three years and will be again soon.

It is said waterways must be improved to help carry the immense tonnage now only half handled by the railroads, and the latter have welcomed even this small sign of partial relief from burdens greater than they can carry with their present mileage and equipment.

It does not take a very discerning eye to see a few years into the future. There will be a general outcry against the business interests of the country being handicapped, circumscribed and limited by the inadequate means of transportation. The howl will go up for quicker and better freight service. Great losses will ensue from congestion of traffic and its slow movement. Crops will not be moved and who will be to blame for this situation?

All the great railroad men like James J. Hill, E. P Ripley, B. F. Yoakum, and others, have pointed all these things out to the people, have told them they needed enlarged railroads, more miles of track, better terminals, and the reply of the legislatures has been to reduce rates, add vexatious conditions, pass laws preventing appeals to Federal courts, etc. Intemperate speeches, public criticisms from men in high places and insinuating innuendoes have floated over the country in the press and magazines until capital, always timid, has sought other fields than railways for investment. There is where the investors have made a sad mistake. Here is a tremendous tonnage to move, greater than all the present railroads can possibly handle (excepting at the present moment during this imitation panic), and there is work ahead to be done that will tax beyond the limits every railroad in existence and there is a good time coming. It does not take a seer, a prophet, nor a son of a prophet to foresee that Kansas, Nebraska, Texas, Oklahoma and other states will be offering all kinds of inducements to the railroads to improve, extend their old lines and build new ones. "We must have more railways" will be the watchword. Special inducements will be offered, restrictive laws will be repealed and a general cancellation of obnoxious railway legislation will obtain. Can't you see it coming? It has got to come, for the plain reason that the railroads now built cannot possibly handle the business during normal periods, and new lines and improvements of old ones must be made and capital will not be forthcoming until this plain, unvarnished business matter is alienated from politics. Political capital never built any concrete thing. The railroads have accepted the Interstate Commerce Act and are rapidly adjusting themselves to it, but they cannot adjust themselves to conflicting enactments in forty-six different states.

Federal incorporation, leaving to the states the existing rights of taxation, is the remedy that seems now to be the most promising solution of a vexed question.

Peace will come with or without federal incorporation, for the pendulum has swung so far in one direction as to injure the business interests of the whole country. Back it will come again and perhaps it will go too far in the opposite direction.

In the long run matters will adjust themselves upon proper lines, but in the meantime, unless this wave of unfriendly legislation and hostile criticism is stopped, this country will suffer severely for a period of years before capitalists will once more feel like making heavy investments for the construction and improvement of railway lines that are imperatively needed and must be built to conserve the best interests of the country.

R. M. Bachelle.

DECISIONS OF INTERSTATE COMMISSION.

NO. 1017. LOUP CREEK COLLIERY COMPANY VS. THE VIRGINIAN RAILWAY COMPANY (FORMERLY THE DEEP-WATER RAILWAY COMPANY), AND THE CHESAPEAKE & OHIO RAILWAY COMPANY.

1. The complainant, located at Page, W. Va., on the Virginian Railway, nine miles from its junction with the Chesapeake & Ohio, applies for the establishment of through routes and joint rates, with divisions thereof, for the transportation, in carloads, of coal and coke over these two roads, from Page to destinations on the Chesapeake & Ohio outside of West Virginia, such rates in no case to exceed those applied by the Chesapeake & Ohio from the junction point of the two roads and from other points on the line of the last-mentioned carrier in the same rate group It is conceded that there is now reasonable and satisfactory through movement and handling of through shipments of the traffic involved,

and that the through routes are asked for only for the purpose of supporting the application for joint through rates and divisions of the same, it not being shown that either the combination rates applying via the two roads from Page or the Chesapeake & Ohio rates from points on its line are unreasonable, and it further appearing that to make such an order would result in compelling the Chesapeake & Ohio to either discriminate between patrons in the rate group served by it or to reduce its rates materially on an important part of its traffic. Application denied.

2. The law does not require the Commission in all cases where no through routes and joint rates exist to establish them, but only empowers it to do so in proper cases with the manifest intent of giving effect to the general purposes of the act to regulate commerce by securing reasonable facilities to the public and preventing unreasonable and unjust rates, practices and discriminations, and in the exercise of this authority the Commission is bound by the same considerations of justice and fairness as it is in the exercise of the rate-making power in other respects.

3. Where neither the interests of the public nor the ends of justice as between the parties directly interested will be promoted by the establishment of through routes and joint rates and divisions thereof, a proper case for the exercise of the authority invoked has not been shown.

4. Disparity in rates between points on different roads serving shippers of coal in the same territory does not necessarily constitute such inequality as to justify the establishment of joint through rates from points on the road farthest removed from the destination points on the basis of rates from points on the other road at the expense of the latter, especially when its rates are not shown to be unreasonable.

5. A through rate for transportation over a line composed of two or more separate roads greater than would be reasonable and sufficient if the same transportation were over a single road is not in all cases unjust.

In the foregoing the Commission again takes the position that proper regard for conditions must be considered and that the circumstances of one line over which a through rate is operative are not to be taken as a precedent for making the same basis over several lines.

NO. 1073. LAXING-HARRIS COAL & GRAIN COMPANY VS. ATCHISON, TOPEKA & SANTA FE RAILWAY COMPANY.
NO. 1074. LAXING-HARRIS COAL & GRAIN COMPANY VS. ATCHISON, TOPEKA & SANTA FE RAILWAY COMPANY.

After the arrival, and usually after sale, of grain transported in carloads by defendant to Kansas City, owners direct delivery to points on the lines of other carriers which assess a switching charge which defendant collects for and pays to said other carriers. Complainant alleges that defendant's published rate on grain to Kansas City includes delivery at any point in Kansas City desired by shipper, whether on the line of defendant or on the lines of any other carrier, and that the switching charge is therefore unlawful and unreasonable. *Held*, That the act in specific terms provides that a common carrier shall not be required to give the use of its tracks or terminal facilities to another carrier engaged in like business; that in the absence of tariff provisions to the contrary, the transportation rate shown in a carrier's tariff on a certain commodity to a given point is understood to include delivery only to industries or unloading points located upon its own rails; that if consignee or owner of shipment desires delivery to point located on the line of another carrier he must pay the lawful charge for such service. Complaint dismissed.

In the above the Commission rules fairly. We believe that the absorption of a switch charge must be left to the natural desire of lines to get business in competition with each other. It is not a preemptory right of any consignee to be placed on an absolute parity upon foreign rails. The question is optional with the carrier and must be also protected by tariff.

TRAFFIC CLUB BANQUET.

The annual banquet of the Traffic Club of Chicago took place the evening of January 30th at the Auditorium Annex. This was the first formal function since the Club became an active organization.

F. T. BENTLEY.

President F. T. Bentley, who has been so efficient in his administration, was absent because of a bereavement in his family, and his place was filled by Vice-President F. A. Spink, who introduced as toastmaster Delos W. Cooke, general traffic manager of the Erie Railroad.

The evening ceremonies were begun by the reading of a toast to Chicago, setting forth the city's possibilities and exploiting her claims to greatness. In following this Mr. Cooke was very happy in his comments, preliminary to the introduction of Judge Dillard, the Interstate Commerce counsel of the Southern Pacific System of roads. The speech of Judge Dillard covered the pioneer work of the West as a civilizing factor,

portraying our great hopes for the future unless unwise laws should retard progress and even go to the extreme of bringing about complete stagnation, or substituting practically government socialism. In his remarks he engaged in some charming plays of fancy to give grace to the salient facts he introduced The address was not only entertaining, it was all through instructive. The feelings of pride in the hearts of those who are a part of the pulsing West were those of partisan enthusiasts over its great possibilities when the speech was finished.

The toastmaster next introduced Senator Newlands, whom President Roosevelt has spoken of as the "Senator from the great maritime state of Nevada." In this speech Mr. Cooke and the Traffic Club were to receive their "Roland" for his "Oliver." He had, prior to this, suggested that everyone seemed to know how to run a railroad except a railroad man, and made some other witty references to railway affairs, which the

DELOS W. COOKE.

Senator apparently took seriously, along with perhaps some inferences from the speech of Judge Dillard It was altogether aside from the real effect to say that the Club was thunderstruck, because there was no consternation, if there was even surprise. There was the most absorbed attention for, when digressing from what was to have been his main topic, the "Co-ordination of Rail and Water Lines," he reviewed the history of railway legislation, there was a natural wish to hear the views of one who was so influential in forming the laws, and the recognition of the Senator's speech was enthusiastic. This was irrespective of conflicting opinion, and came from those who agreed with him, and those who opposed him, in equal share.

There is one thought that ought to be remembered, and that is, that the railways and great shippers were unaware of popular feeling at the beginning of railway law making by the Federal Government. It is possible, and, we may say, probable, that the relatively few men who were pre-eminent in the realms of transportation and of commerce at this time, because of the altitude of their point of survey, were utterly unaware of the rumble on the ground, until, beginning in the fertile valleys of the West, it had spread along, to mingle its murmurs with the waves of two great oceans, leaving behind a reverberating echo of discontent. Imperceptibly, therefore, we became the victims of a highly specialized form of thought, applying results too much to a limited few rather than enjoying the effect of a general study of conditions in the interest of the common welfare. Mystery in methods and secrecy in conditions followed, for which responsibility must rest *alike* upon the *great* shipper and the *great* carrier. If there had been at a critical period some Moses to point the way to a commercial Canaan, someone to show the mystified people where the rights of shipper and carrier became obscure, it may be that all combinations—the good and the bad—would not be under ban of condemnation, and the railways of this country in particular would not be in the false position of apparently contesting with the Chief Executive of this nation for supremacy in government, when in reality they are only seeking a fair measure of justice.

Senator Newlands' speech was worth much as a clear exposition from the standpoint of the public, and especially as he is not a member of the administration party, being a democrat, though not a partisan, upon economic questions. In effect the remedy for our troubles seems to be, publicity and uniformity in methods; frankness and clearness as to conditions. Once the true line of demarcation between equity and confiscation is shown the conservative thought of this country, it is predicted, that patriotic legions will rush upon this ogre of absorption and drive it from our shores.

The "Banker and Investor" has given space to the following poetical effusion called "Dollars and Sense" which can be read with considerable appreciation at this time:

Once a dollar that was tainted met a dollar pure and sainted
And they quickly got acquainted as they lay within a sack;
And they spoke with friendly clatter on full many a weighty matter
While the bag kept growing fatter till it seemed about to crack.

Said the dollar, fair and holy, to the wicked roly-boly;
"T'was by honest labor solely that I came to nestle here."
Said the spotted coin, with laughter: "I was traded by a grafter,
Careless of the sad hereafter, for a keg of foaming beer."

Said the honest dollar, balking: "I've no wish to keep on talking
With a dollar fond of walking in such gloomy paths of sin.
Go your way to grim perdition Though I mourn your vile condition,
Since you do not show contrition, you're the worst of all your kin."

Thus the angry dollars parted, and the dollar brazen-hearted,
Later on to China started in a missionary fund,
While the honest dollar, sighing, at election time went flying
With its comrades, ballot-buying for the wicked plunderbund

In consolidating the commercial offices of the Rock Island-Frisco System at many points, efforts have been made in most cases to provide positions for all affected employes This is in accordance with the Yoakum policy

E. B. BOYD.

The Board of Trade of Chicago some three years since induced E. B. Boyd to leave official connection of high rank with the Rock Island System and become manager of the Transportation Department of that organization. He has recently taken service in his former line with the Missouri Pacific Railway as vice-president, to supervise its traffic, with headquarters in this city. January 29 a banquet was given by the Board of Trade to publicly approve Mr. Boyd's efficient work and as a compliment to his administrative capacity. It has been the writer's pleasure to be

E. B. Boyd.

present at no more dignified an entertainment than this banquet for many years, and the sincere commendation of the work accomplished by the retiring manager must have more deeply impressed him than anyone else, even with the loyal co-operation of those whom he had served. These friendly comments were supplemented by the gift of a very pretty silver service, which will be a daily reminder of the sentiments taking this material form of esteem. George F. Stone, the secretary of the Board of Trade, with clear regard for the opinions of all the guests, made a most happy speech. The toastmaster, Mr. Fitch, was a very marked success, his comments in introducing the speakers having both humor and originality. W. C. Brown, senior vice-president of the New York Central Lines, was impressive in his statements as to the value of commerce as the underlying foundation of art, science and education, and deprecated any steps that might restrain progress. B. L. Winchell, president of the Rock Island road, spoke in the interest of harmony between shipper and carrier and voiced opinions that met with the approval of all present. There were short talks from F. A. Delano, president of the Wabash Railway, F. D. Bowes, traffic manager of the Illinois Central Railway, and the president of the National City Bank, Mr. Forgan, which were appropriate and well received. The closing speech of Mr. Boyd was a triumph of good taste and an acknowledgement of the character of his associates and their treatment of him. His unwillingness to accept more than his share of praise for the success of the organization was shown by his frank tribute to the co-operative policy of the members of the Board of Trade.

E. H. GARY'S POSITION.

Below we are giving extracts from an interview with E. H. Gary, chairman of the United States Steel corporation, published in the New York Herald January 2nd of this year. The views of Chairman Gary have reached us in pamphlet form, and we are so impressed with the position taken by him that we have included in this issue of our paper all of this interview that our space would allow. We believe it will be helpful to all our readers to peruse carefully what follows:

CORRECTING LAX METHODS.

All of us should be willing to admit that lax methods existed in the management of some of our banks, manufacturing companies, railroad companies, insurance companies, public institutions, municipal and even State organizations. It is not wisdom to complain of the public official or the public press that may have exposed or opposed these improprieties. On the contrary, everyone should consider all that is said and written with the single purpose of deriving benefit. Indeed, such is the conclusion of a large majority.

Hereafter business will be more fairly and honestly conducted. Men will observe the requirements of the law. They will have regard for the rights and interests of their competitors, their customers, their employes or employers and the public generally. Managers of large interests will recognize the fact that they are acting in a trust capacity with strict obligations to others and having no right to secure advantages personal to themselves. Consequently property has actually become more valuable, and the interests of those who have intrusted the management of their estates to others through the ownership of securities or otherwise will hereafter be better protected.

PUBLICITY'S POWER FOR GOOD.

Then, the present attitude of the leading newspapers and magazines of this country concerning important questions that affect financial conditions is of the greatest value and benefit. Their power for good during the last few months can hardly be overestimated. These periodicals influence, and in a large measure control, public sentiment, and that is the first thing to be considered in the determination of business conditions. There has been and still is some lack of confidence. This must be restored, for there is in the world only a small percentage of currency as compared with the volume of business. The larger portion must be done on credit. Public sentiment is improving confidence is being restored, banks are opening their vaults and accommodating their customers, and the public press is exerting an influence in this respect that is effective and is justified by all the facts and figures applicable.

Again, the experiences of the last year have been of great value. We have been extravagant in every direction, and have been compelled to realize it. We understand better than ever before that our financial system is not yet perfect, and that there is need of some changes in basis and in methods. Better supervision and improved management have been shown to be necessary. We appreciate more fully that a good banker may not be fit to operate a blacksmith shop, nor a blacksmith fit to manage a bank. Moreover it may be safe to assert that most, if not all, of the people now believe publicity in regard to and regulation of large enterprises is more important to be considered than the mere question of the right of such enterprises to exist.

CONFIDENCE THE ESSENTIAL.

But confidence is the essential. When this is fully restored this country will witness the greatest prosperity it has ever experienced. All are responsible for lack of confidence and its restoration, and nobody can skirk it Common honesty is the constant need, and this applies not only to the business man, but to all others; to the legislator, to the public official, to the professional man, to the public press Too many have been influenced by motives of cupidity or other improper motives.

Much depends upon legislation and lack of legislation. Some additional laws are needed; a large number of new laws proposed would be harmful. Some laws recently passed by certain of the State legislatures should be repealed. Improvements in the financial system of this country are probably requisite, though radical and poorly considered changes would be deplored Greater elasticity (perhaps through a National bank of deposit and issue *properly organized and properly managed*) and better co-operation between the bankers throughout the country would seem to be advisable. Also, the people should be satisfied with laws that prevent the wrongful acquisition and the wrongful use of wealth rather than laws to prevent the mere acquisition, possession or use of the same.

For the near future much depends upon the platforms and the nominees of the conventions to be held by the two great political parties during the early summer of 1908. If platforms shall be adopted which are sound, reasonable and conservative, and the candidates to be selected are men who have proved themselves to be honest and wise and solicitous for the welfare of the whole people, the effect upon business will be of great and immediate benefit.

Based on the supposition that advantage will be taken of our opportunities to return to normal conditions, there should be some improvement early in the coming year, a substantial increase in midsummer and a satisfactory volume in the autumn. The optimist of this country, if he will keep within the limits of his resources, will be successful.

GEORGE H. INGALLS' SPEECH.

George H. Ingalls, Freight Traffic Manager of the New York Central Lines, west, spoke to the Traffic Club of Chicago at the noon meeting February 13th. His remarks as reported in the Chicago Record-Herald of the 14th instant are as follows:

"If co-operation from the standpoint of the Traffic Club means that the railroads shall always do what the shippers want them to do, then the Traffic Club is not worthy of consideration."

Mr. Ingalls said that he thought the Traffic Club was a "get together" organization, and not one in which personal interest was to have any weight. From the shippers' idea of co-operation, however, as outlined by some, it seemed that the railroads could not co-operate unless they permitted themselves to be dictated to by the shippers.

"We have been met too often," said Mr. Ingalls, "in our efforts to bring about changes with the proposition from shippers 'If you do or do not do this you need not expect any more of our business' This is not co-operation."

The speaker refuted Mr. Barlow's statement, made the week previous, that the railroads had decided to close the freight warehouses at an earlier hour, without consulting the shippers.

"I am reliably informed," said he, "that a committee of railroad men discussed this matter with the Chicago Association of Commerce, which has never made a protest nor presented a counter proposition. With respect to switching in Chicago, and about which the shippers seem to feel so badly, it can truthfully be said that no city in the world has such a wide expanse of free switching territory, and it is this fact which has made possible the wonderful commercial and manufacturing development of Chicago.

SAYS ROADS ARE IGNORED.

"How is it on the other hand? Nearly all the railroads are members of the Chicago Association of Commerce, and yet the committee of that organization did not say anything to us when the association decided to go to the Interstate Commerce Commission and ask for a change in the marine insurance of freight And in all my experience but a single shipper has come to me in hard times and pointed out a way to increase our revenues.

"If the railroads are to co-operate give them a chance for their lives. The door of the railroad man is always open to the shipper, and a traffic man never makes nor changes a rate without a careful study of commercial conditions. We need your help, but we want it on the true lines of co-operation and not upon the lines of selfish interest."

The sentiments in our opinion carry no feeling of resentment, and can properly arouse no feeling of antagonism, if they are left as reported They are not to be left, however, without qualification concerning the basic thought that underlies them. It is in our analysis this: The traffic officials' survey of business includes a multitude of articles, aggregating an enormous volume of freight. To know the absolute detail, in the conditions governing its movement, as to proper classes, and the proper equalization of rate bases, so as to generally mete out justice to the various producing regions, is an utter impossibility, unaided by outside counsel. The shipper upon the other side knows all the details of his particular commodity, and can by conference place before the traffic man the necessary information to warrant intelligent action. In saying this we mean that the shipper must regard the establishing of such fair conditions, as will result in *substantial equality*, and not *preferential bases* for either shipper or locality. In other words, the producer and forwarder of the freight, must be willing to show, that he operates under an unjust restriction, and not refuse to accept conditions alike, under *similar circumstances*. This being our consensus of Mr. Ingalls' general attitude, we are, by the rules of fairness, without any other opinion, than harmony with his sentiments.

JUDGE BALL'S DECISION.

The opinion of Judge Ball in the Fish-Harriman controversy for control of the Illinois Central Railway is in line with conservative estimates of what it probably would be. There was the desire to see that whatever rights Mr. Fish might have should be protected, and the exploitation of Mr. Harriman as a rather dangerous factor in transportation life was the cause of much local sympathy perhaps. The result, however, has shown no infringement of any legal rights upon the part of the Harriman interests, and Mr. Fish can now help business conditions by letting the situation rest as a closed contest. Good law and good morals both permit the very rich man to retain all that he honestly acquires, and lack of personal success in fair competition scarcely warrants the interruption of operations in a large corporation affecting the welfare of many people. Reading carefully, the views of the Judge as given in the papers, we can find no fault with his conclusions. There is such a thing as fearing "Harrimanitis" until the fear of it becomes much worse than the attack. Unless one is well and firmly entrenched in opposing the great financier, he may lose more than his appendix and have nothing but his "table of contents and errata left."

We are hearing as much about Chancellor Day as we used to hear of Damon and Pythias from, if we remember, a town of the same name. But you can't stop Syracuse with such a record of brotherly love for precedent.

The railroads of Missouri have decided to contest the two-cent passenger fare law of that state. They claim the loss on account of the reduced rates has forced them to lay off about 10,000 men.

FROM MY OBSERVATION CAR.

BY R. R. JESTER.

Here is enterprise for you. George H. Anthony, of railway fame, has issued a catchy greeting to his friends, which bears the accompanying illustration (not copyrighted) with the fact that "From Winnipeg the Wisconsin Central Railway extends to you the glad hand." Beneath this printers' ink oil painting is the following:

"Here's a greeting from George H. Anthony,
The man who handles your freight,
And hoping you'll have twice the quantity in 1908."

A casual glance at the picture is enough to assure anyone that the enthusiastic hand extended is the glad one, the one that never grows weary of doing a gen-

THE GLAD HAND OF THE WISCONSIN CENTRAL.

erous favor for his fellowmen, and ladies, too, for that matter. It matters not in what field or country Mr. Anthony travels he never changes his name, but on account of his ability to make records, he gets his title changed from time to time, and occasionally his stipendiary emoluments are augmented—deservedly so, too. The Wisconsin Central can count on getting its share of the business from Canada and the Klondike with Mr. Anthony in that field rounding up shipments and passengers. Leave it to him and traffic will move over the Wisconsin Central.

It matters not how pleasant an official tries to be or how gruff he naturally may be, he cannot help from wishing to know how popular he is among the employes. Along this line of thought here is a story told before the last meeting of the Pittsburg Railway Club by L. C. Bihler on B. A. Worthington, vice-president of the Wabash lines east of Toledo:

"Now, talking about these nature fakes, Mr Worthington was introduced as a man that talks on the "Relations of the Government to the Railroads." He is a professional storyteller only he forgets to tell any stories on himself If I recall correctly, this happened on the Harriman lines in California when Mr Worthington was with them He was finally made superintendent of a grand division and was very proud when they gave him his first private car The name of that car was Orilla, a Spanish name meaning "flowing waters" or "still waters" or something like that One night Mr Worthington pulled into the station at Los Angeles, and those wise men came and hammered and rapped on the wheels—I don't know what they do it for, but they came along and rapped on the wheels and inspected the car and threw a big flashlight up in Mr Worthington's eyes who was inside looking out to see what all the noise was about And he heard voices outside saying: "I wonder who the divvle's car this is?" "What is it?" "O-r-i-l-l-a." "Well, it's the old man's car I wonder why the painter didn't put a G on it?"

This is not all. Mr. Worthington told this one himself:

We do not allow any smoking on duty, and we have printed our rules to make them more effective It doesn't always work, however When I was going along over in the yard I came to a caboose where there was a brakeman sitting on the steps smoking a cigar. He didn't see me coming When I got up to him I said. "Don't you know it is against the rules of the company to smoke on duty?" He said: "Yes, sir." And he just kept on smoking and blowing the smoke up in my face. I said: "Which do your prefer, your cigar or your job?" He looked at me and said: "Well, I don't know, Mr Worthington; they are both pretty darned rotten."

No doubt the claim department of a road has the largest file of curio-letters of simplified and phonetic spelling of any other branch of railway service. The claim department of a St. Louis road is the recipient of the following epistle, written with a leadpencil, and no doubt, in a hurry: "dear sur did yure injinear tel you he has killed two couse belonging to me he sed he wud tel you and the konductor to, they killed them tonite as they cam acros the rode at my plais where I have got a crossin and when i put my crossin in you sed you was putting up a fense on ache side of the rode that would keep critters from gettin killed You put up a hel of a fense too calfs broke it to kindlin wood a our after yure fense gang went down the rode. Your injinear ott to be fired the couse he killed was yerelin heffers brand bar J bar swallow fork on rite and left ear hacked i want the money for the couse and if your injinear kills anuther one of my couse I will see that your injinear is not long getin after the couse you have killed more stock for me than yure dam rode is worth and you pay for it. We got along befour the railrodes came better than we do now, my critters is al i have on urth to live on and if yure injinear can kil one every time he gets drunk al i sai is this unided state has gone to the devvel, the couse will be 95 dolers hope you are wel."

The daily press reports from Washington, D. C., under date of December 12, state that negotiations are under way between the Attorney-General and E. H. Harriman looking to an agreement by which the Union Pacific will abandon all its direct control of the Southern Pacific, in return for which the government will agree not to prosecute Harriman for violation of the Antitrust law and of the competitive clauses in the Interstate Commerce law. The negotiations have not actually been concluded, but they have reached a stage where it is believed an agreement will be entered into. The Southern Pacific is to be reorganized as a separate corporation, and the Union Pacific will either take over the old Central Pacific line from Ogden to San Francisco or else will operate over it as a through line if it is permitted to do so by law.

PERSONAL

EXECUTIVE, OPERATING AND PURCHASING

F. B. Gibson has been made a director of the Den N W & Pac.

G. W. Vanderslice has been made div supt of the Mex Cent at Juarez, Mex.

Allen Purvis has been appointed supt of the Canadian Pacific at Nelson, B C.

John Ryan has been made genl mgr of the Tonopah & Tidewater, at Stagg, Cal.

J. G. Walber has been made asst to the vice-pres of the B. & O at Baltimore.

H. S. Bottoms has been made supt. of the Trin. & B Valley at Ft Worth, Tex.

W. C. Farrington has resigned as vice-pres of the Pacific Coast Steamship Company.

H. W. Burkhead has been made insp. of transp. of the I. & G. N. at Palestine, Tex

R. S. Richardson has been made asst supt of the Can. Nor. Que., office at Montreal.

R. J. Lockett has been made supt. terms. of the Rock Island-Frisco at Memphis, Tenn.

C. C. Riley has resigned as supt. of transp. of the Erie to accept service with the K C. S.

Thomas O'Connor has been appointed supt. of the Pacific & Eastern at Medford, Ore.

E. V. Brogan, trn. mstr. of the Lake Shore, has removed his office from West Seneca to Erie, Pa.

W. P. Cocklin has been appointed examiner for the local lines of the Wabash at Pittsburg, Pa

J. M. Bennett has been appointed supt. of the Southern Ry. at Winston-Salem, N. C., vice **A. M. Smith.**

A. G. Abell has been appointed supt. of the Missouri Pacific at Monroe, La., vice **C. H. Bevington,** resigned.

J. R. Cameron, supt. of the Can. North. at Port Arthur, Ont., has been appointed genl. supt. at Winnipeg, Man.

F. T. Bowles has been appointed asst. to the vice-pres. of the Missouri & North Arkansas at Eureka Springs, Ark.

D. W. Newell has been made div. supt of the Southern at Jacksonville, Fla., vice **J. A. Baumgardner,** transferred

W. R. Campbell has been made asst. to the pres. of the Susquehanna & New York, the Tionesta Valley & Leetonia.

J. D. Melville has been made supt of the Mex Cent. at Cardenas, Mex., vice **A. C. Hobart,** assigned to other duties.

J. C. Dailey has resigned as supt. of the Illinois Central to become genl. supt. of the International & Great Northern

M. Flanagan has been made M M of the Grt Nor. at Havre, Mont., vice **K. A. Froberg,** transferred to Superior, Wis

George L. Noble has resigned as asst. genl. mgr. of the International & Great Northern, and the office has been abolished

E. E. Lillie has been appointed supt. of car service of the Portland & Seattle and the Astoria & Columbia River at Portland, Ore

C. L. Nichols has been made div supt of the Nor Pac at Livingston, Mont., vice **D. Boyle,** resigned to engage in private business

William Collins has been appointed genl mgr of the Fourche River Valley & Indian Territory at Fourche, Ark., vice **F. C. Faust,** resigned.

J. L. Greatsinger, formerly pres of the Duluth & Iron Range, has been elected first vice-pres of the Delaware & Eastern, vice **A. C. Fairchild.**

Alexander Bonnyman, chf. eng of the Atlanta, Birmingham & Atlantic, has been appointed genl mgr at Atlanta, Ga., effective on February 15th

H. W. Sheridan, trn mstr of the Union Pacific at Green River, has been appointed asst div supt of the Southern Pacific at Sacramento, Cal

L. W. Keck has been made asst trn mstr of the B & O at Union Town, Pa., and **T. E. Jamison** has been transferred as asst trn mstr to Connellsville, Pa

Henry Martin, insp of transp of the International & Great Northern, has been appointed supt of that division at Mart, Tex., vice **C. Hightower,** resigned

The following have been elected officers of the Pacific & Eastern. **Hunt Lewis,** pres., **Edgar Hafer,** vice-pres.; **John C. Lewis,** secty., and **H. Withington,** treas

V. F. DeVinney has resigned as purch. agt of the Chicago Great Western to engage in other business **A. D. Ward,** who formerly held this position, succeeds him.

J. G. Walber, asst. genl. mgr. of the Baltimore & Ohio Southwestern, has been appointed asst. to **George L. Potter,** third vice-pres. of the Baltimore & Ohio, at Baltimore, Md

W. H. Bower, genl mgr. of the Coal & Coke Ry. at Elkins, W Va., has resigned, and the position has been filled by **Edwin Bower,** asst genl. mgr., who is made act. genl. mgr

W. R. Hudson has been made div. supt. of the So. Ry. at Birmingham, vice **E. E. Stoup.** **W. J. Bell** has been made trn mstr at Macon, vice **A. O. Gunhorpe,** assigned to other duties.

E. W. Thompson has been made supt. terms. of the Nat'l Lines of Mexico at Mexico City. **J. C. Sielski** has been made div. supt. at San Luis Potosi, vice **A. Larkin,** deceased

George L. Pollock has resigned as purch. agt. of the Wabash-Pittsburg Term. and has been made supply agt. at that point. **J. F. Marshall** has been made genl strkpr. at Canton, Ohio.

G. F. Moore has resigned as genl. mgr. of the St. Joseph Valley Railway to become insp. of genl. accts. for the Interstate Commerce Commission at Washington, D C., effective on March 1st

J. F. Hays, genl agt. of the Southern at Asheville, N. C., has been appointed mgr. of the line between Hendersonville and Lake Toxaway (Transylvania Railroad), with office at Brevard, N. C

W. M. Bushnell, formerly asst. genl. frt. agt. of the C. & A., has been made genl. mgr. of the Ft. S. & Western and the St. L., El Reno & Western at Eureka Springs, Ark., vice **W. E. Crane.**

Morris McDonald, genl. supt. of the Maine Central, has been elected vice-pres. and genl. mgr. at Portland, Me., vice the late **George F. Evans,** deceased. **George S. Hobbs,** comptroller, was chosen second vice-pres. also.

J. S. Peter has been made act. genl. mgr. of the S. A. & A. P. at San Antonio, Tex., vice **H. M. Hobbs,** resigned as vice-pres. and genl. mgr. to become genl. supt. of the So. Pac. lines in Louisiana, vice **E. B. Cushing,** assigned to other duties.

E. V. Dexter, formerly genl insp. of fuel, equipment and material of the Chicago & Alton, has been appointed purch. agt. of the Mexican Central, with headquarters at the City of Mexico. The offices of act purch. agt and asst. purch agt. have been abolished.

The following appointments are announced on the N C. & St L. Ry.: **W. F. Watterson,** div. supt. at Buffalo; **G. C. Todd,** trn mstr. at Conneaut, Ohio; **R. W. Mitchener,** div supt at Cleveland; **S. K. Blair,** div supt at Ft Wayne, Ind., **E. S. Kirby,** trn mstr. at Ft. Wayne, Ind.

The following appointments are announced on the N. Y., N. H & H.: **C. N. Woodward,** div. supt at New Haven, Conn., vice **C. C. Ewell,** assigned to other duties; **C. S. Lake,** div. supt. at New Haven; **J. A. Droege,** div. supt. at Providence, R I.; **B. R. Pollock,** div. supt. at Hartford; **A. W. Honywill,** asst. div. supt. at Hartford; **Wm. Daniels,** asst div supt. at New Haven; **A. W. Martin,** div. supt at Boston, **J. W. Carr** and **G. A. Heller,** trn mstrs at New Haven; **J. D. Gallary** and **R. D. Fitzmaurice,** trn mstrs. at Providence. **G. T. Taylor** and **I. N. Marshall,** div. supt., resigned on the pension system.

The following changes are announced on the N Y N H & H., effective February 16th: **Edwin T. Horn,** asst supt **D. F. Stevens,** trn. mstr., **J. B. Considine,** chf trn disp., **I. Felter,** night chf trn disp., all at New Haven, Conn. **P. W. J. Smith,** pass. trn mstr at Grand Central depot, New York, **C. H. Wotzett,** frt trn mstr at Harlem River, **H. E. Bailey,** chf trn disp at Harlem River Midland Division **I. Wickham,** chf trn disp and **L. R. Stevens,** night chf trn disp., both with headquarters at Hartford, Conn. **J. D. Gallery,** trn mstr., **R. D. Fitzmaurice,** trn mstr., **M. D. Miller,** chf trn disp. **C. S. Spaulding,** night chf trn disp all with headquarters at Providence, R I. Western Division **J. R. Carr,** trn mstr., **G. A. Heller,** trn mstr., **F. A. Barrows,** chf trn disp., **William McLaughlin,** night chf trn disp all with headquarters at New Haven. Boston Division **E. H. Morse,** pass trn mstr at Boston, **F. S. Hobbs,** frt trn mstr at South Boston, and **V. Collins,** chf trn disp at Boston

The following appointments are announced on the Mo. Pac.; **M. M. Richey,** div. supt. at Little Rock, Ark., vice **John Cannon,** transferred to De Soto, Mo. **J. W. Dean,** supt. terms. at St. Louis, vice **E. F. Kearney,** made supt. transp.

TRAFFIC AND ACCOUNTING.

George Stagg has resigned as city pass. agt. of the Erie in New York.

C. E. Bascom has been made div. pass. agt. of the Frisco at Oklahoma, Okla.

E. H. Ross has been made local frt. agt. of the Santa Fe at San Angelo, Tex.

Chas. Drinkwater has resigned as secty. of the Canadian Pacific; office at Montreal.

Jeff McLemore has been made coml. agt. of the St. L., Brown. & Mex. at Mexico City.

J. W. Donald has resigned as dist. pass. agt. of the Chicago & Alton at Detroit, Mich.

R. B. Wilson has been appointed trav. frt. agt. of the Missouri Pacific at St. Paul, Minn.

John G. Stevens has been appointed cont. frt. agt. of the Chicago Great Western at Buffalo.

J. O. Hendley has been appointed genl. frt. agt. of the Raleigh & Southport at Raleigh, N. C.

E. J. Triay, Jr., has resigned as div. frt. agt. of the Delaware & Hudson at Plattsburg, N. Y.

C. E. Nelson has been appointed trav. frt. and pass. agt. of the Oklahoma Central at Purcell, Okla.

H. H. Perry, aud. and **R. H. Young,** frt. agt., both of the Tex. Sou. at Marshall, Tex., have resigned.

W. A. Vaughan has been appointed genl. bag. agt. of the Atlanta Terminal Company of Atlanta, Ga.

A. Jaap has been made trav. frt. agt. of the M. K. & T. at Mexico City, vice **H. C. Caldwell,** promoted.

J. C. Ryan has been appointed genl. frt. and pass. agt. of the Illinois Terminal Railroad at Alton, Ill.

A. T. Vannerson has been appointed genl. frt. and pass. agt. of the Raleigh & Charleston at Marion, S. C.

S. E. Thomas, coml. agt. of the Big Four at Indianapolis, Ind., has been appointed genl. agt. at that point.

A. R. Owen has been appointed genl. trf. agt. for Japan for the Canadian Pacific, with office at Yokohama.

F. A. McIntyre has been made cent. pass. agt. of the Mo. Pac. at Pittsburg, Pa., vice **H. L. Pease,** resigned.

F. V. Whiting has been appointed chf. claim agt. of the Indiana Harbor, with offices at La Salle Street Station, Chicago.

W. O. Lorello has been made frt. agt. of the Santa Fe at Beaumont, Tex., vice **O. E. George,** transferred to Marietta, Okla.

H. P. Rugg has been appointed insurance inspector of the Chicago Great Western, with headquarters at St. Paul, Minn.

R. M. Calkins has been made genl. frt. agt. of the C. M. & St. P. lines west of the Missouri River; office at Butte, Mont.

H. S. McIntyre has been appointed genl. agt. of the Northern Pacific and the Portland & Seattle at Vancouver, Wash.

Henry Adema has been appointed trav. frt. agt. of the D. L. & W. at Buffalo, N. Y., vice **George V. Horgan,** resigned.

H. V. Gregory has been appointed trav. pass. agt. of the Missouri Pacific at Louisville, Ky., vice **H. L. Parker,** deceased.

W. E. Burke has been appointed sol. agt. of the Nashville, Chattanooga & St. Louis at Chicago, vice **L. C. Perkins,** resigned.

C. H. Reade, trav. pass. agt. of the Canadian Pacific at Portland, Ore., has been transferred to Tacoma, Wash., as pass. agt.

E. M. Hebard has resigned as aud. of the Indianapolis Southern to accept a position with the Bolivia Railway; office at New York.

H. S. Drysdale, cont. agt. of the San Pedro, Los Angeles & Salt Lake, has been appointed genl. agt. at Pittsburg, Pa., vice **Allen Waldbauer,** resigned.

J. W. Terry, aud. of the San Antonio & Aransas Pass, has been elected secty., with headquarters at San Antonio, Tex., vice **R. Houston,** resigned.

E. J. Naylor has been appointed southwestern pass. agt. of the C. & A. and the Toledo, St. Louis & Western at Dallas, Tex., vice **J. W. Govan,** resigned.

F. S. Hollands has been appointed chief of the tariff bureau of the Toledo, St. Louis & Western and the Chicago & Alton, with headquarters at Chicago.

J. A. Fitzpatrick has been made coml. agt. of the Clover Leaf and the Chicago & Alton at Dallas, Tex., and **B. F. Naylor** has been made trav. pass. agt. at Dallas,

W. H. Burk, New England agt. of the Chicago Great Western at Boston, Mass., has been appointed genl. Eastern agt. at New York, vice **B. G. Saunders,** resigned.

Allen Waldbauer, heretofore genl. agt. of the San Pedro Los Angeles & Salt Lake at Pittsburg, has been appointed genl. agt. of the Kentucky Midland at that point.

D. M. Morgan has resigned as trav. pass. agt. of the St. Louis Southwestern at Ft. Worth, Tex. **Gus Hoover,** trav. pass. agt. at Waco, Tex., has been transferred to Ft. Worth.

W. W. Cole has been appointed asst. treas. of the Minneapolis & St. Louis and the Iowa & St. Louis, with headquarters at Minneapolis, Minn., vice **Joseph Gaskell,** deceased.

T. C. Beal has been appointed coml. agt. of the New York Central, the West Shore, the Boston & Albany, the New York & Ottawa and the Ottawa & New York, Pittsburg, Pa.

E. A. Bynum, local agt. of the New Orleans Terminal Company, has been appointed asst. genl. frt. agt. of the Mobile & Ohio, at New Orleans, La., vice **N. M. Leach,** resigned.

John W. Hooks has been appointed coml. agt. of the Atlanta & West Point and the Western of Alabama at St. Louis, Mo., vice **Edward L. Behr,** resigned; effective on February 15th.

Spencer Elkin has been appointed sol. agt. of the Georgia Railroad at Nashville, Tenn., succeeding **R. C. Wharton,** transferred. **L. A. Ripley** has been appointed coml. agt. at Cincinnati, Ohio.

Geo. H. Foote has resigned as secty. of the K. C. Pass. Bureau at Kansas City and accepted the position of joint agent of all the K. C. lines at the Union Station. The pass. bureau has been abolished.

Wm. H. Weeks has resigned as live stock agt. of the Rock Island-Frisco lines at Ft. Worth, to become trf. mgr. of the Union Stock Yards at Kansas City. **E. F. Tillman** succeeds **Mr. Weeks** on the Frisco.

Benton Quick, pass. and tckt. agt. of the Missouri Pacific at St. Joseph, Mo., has been appointed genl. bag. agt. at St. Louis, vice **A. V. Brigham,** resigned. **C. F. Lechler** succeeds **Mr. Quick** as pass. and tckt. agt.

M. Sweeney, formerly vice-pres. and genl. mgr. of the T. & B. V., has been chosen mgr. of the Texas Car Service Association at Houston, Tex., vice **R. S. Collins,** who has been appointed secty., vice **W. S. Hayden.**

H. C. Caldwell has been made coml. agt. of the M. K. & T. at Mexico City, vice **L. B. Chipley,** assigned to other duties at St. Louis. **L. W. Mosher** has been made coml. agt. at Sedalia, Mo., vice **J. W. Connor,** resigned.

J. D. Shields, asst. aud. of frt. and tckt. accts. of the Burlington lines west of the Missouri River, has been appointed aud. of frt. and tckt. accts. and frt. claims at Omaha, Neb., vice **W. Randall,** who has been assigned to special duty.

F. A. Howe, genl. agt. of the Grand Trunk at Chicago, has been retired under the pension rules of the company, after forty years of continuous service with that system, and **G. J. Harris** has been appointed lake and rail agent at Chicago.

W. F. Ingram has resigned as aud. of the Sonora Railway, the Arizona & Colorado, the Cananea, Yaqui River & Pacific, the Maricopa & Phoenix & Salt River Valley and the Gila Valley Globe & Northern, to become asst. aud. of the Southern Pacific at San Francisco.

F. M. Carter, asst. treas. of the Cincinnati, Hamilton & Dayton, has been appointed treas., with headquarters at Cincinnati, Ohio, and the former office has been abolished vice **J. E. Howard,** who resigns to devote his entire time to his duties as secy. and treas. of the Pere Marquette.

S. J. Daly, dist. pass. agt. of the C. G. W. at Chicago, has been transferred to Boston, Mass., in a similar capacity, vice **W. A. Dolan,** made New England frt. agt. **Frank Carroll** has been appointed coml agt at Cleveland, Ohio. **W. F. Burch,** dist pass agt at Pittsburg, has been transferred to Cleveland.

ROADWAY AND ENGINEERING.

E. S. Heyser has been made rd. mstr. of the St. L. B. & Mex. at Rolestown, Tex.

Henry Rohwer has been appointed consulting eng. of the St. Louis & Oklahoma Southern.

H. F. White has resigned as eng. of maint. of the Rock Island at Chicago, and the office is abolished.

James B. Cox has engaged in practice as consulting eng. with offices in the Railway Exchange, Chicago.

E. S. Heyser has been appointed rd. mstr. of the St. Louis, Brownsville & Mexico at Kingsville, Tex.

R. P. Black, div. eng. of the Toledo & Ohio Central, has been appointed div. eng. of the Kanawha & Michigan at Charleston, W. Va.

C. H. Fisk has been appointed chf. eng. of maint. of way of the Colorado Southern, New Orleans & Pacific, with headquarters at Beaumont, Tex.

E. B. Brown, foreman of bridges and buildings of the Frisco at Cape Girardeau, Mo., has been transferred to Beaumont, Tex., in a similar capacity, vice **H. M. Henson,** resigned.

MECHANICAL.

F. S. Anthony has been made M. M. of the I. & G. N. at Palestine, Tex.

G. S. Hunter has resigned as genl. M. M. of the I. & G. N. at Palestine, Tex.

Timothy Sullivan has been made fore. of the I. & G. N. shops at Mart, Tex.

Jas. McDonough has been made genl. fore. of the T. & B. V. at Galveston, Tex.

E. F. Fay has been appointed supt. of shops of the Union Pacific at Cheyenne, Wyo.

John Dugan has been made mstr. smith of the U. P. at Omaha, vice **R. A. Mould,** deceased.

M. C. Dugan has been made fore. smith of the U. P. at Cheyenne, Wyo., vice **J. C. Dugan,** promoted.

J. P. McCuen has resigned as S. M. P. of the C. N. O. & T. P. at Ludlow, Ky., and has retired to private life.

E. S. Fitzsimmons has been made M. M. of the Erie at Hornell, N. Y., vice **G. T. Depue,** granted a leave of absence.

Thos. J. Moore has been made roundhouse foreman of the Santa Fe at Cleburne, Tex. **H. M. Fitz** has been made roundhouse fore. at Temple Tex.

J. B. Gannon, div. M. M. of the New York, New Haven & Hartford at New London, Conn., has been transferred to Hartford, Conn., as M. M. of the Midland Division.

T. S. Reilly, recently associate editor of the Railway and Engineering Review, Chicago, has been appointed to the position of mech. supt. of the Canton & Hankow Railway at Canton, China.

G. Akans, M. M. of the Southern at Selma, Ala., has been transferred to Birmingham, Ala., in a similar capacity, vice **N. N. Boyden,** who has been appointed M. M. at Atlanta, Ga., vice **J. F. Sheahan,** transferred.

C. T. Hessmer, rd. fore. of engines of the Northern Pacific at St. Paul, Minn., has been appointed M. M. at Staples, Minn., vice **W. Lincoln,** resigned on account of ill health. **Silas Zwight,** rd. fore. of engines at Fargo, N. D., has been appointed M. M. of the St. Paul Division at Minneapolis.

The following appointments are announced on the N. Y. N. H. & H.: **J. M. Collins,** M. M. at Harlem River, N. Y.; **P. C. Zang,** M. M. at New Haven, Conn.; **G. A. Moriarity,** M. M. at Providence, R. I.; **J. Hocking,** M. M. at So. Boston; **D. R. Killinger,** M. M. at Taunton, Mass.; **J. B. Gannon,** M. M. at E. Hartford, Conn.; **H. C. Oviatt,** M. M. at New Haven, and **J. McCabe,** genl. rd. fore. at New Haven.

OBITUARY.

W. J. Murray, formerly div. supt. of the So. Pac., died at Torreon, Mex., on January 24th.

J. B. Allen, car accountant of the International & Great Northern, died suddenly on February 6th.

J. W. Field, chf. eng. of the Wichita Falls & Northwestern, died on February 3rd, aged 54 years.

Asa G. Dailey, formerly supt. of tracks and bridges of the Michigan Central, died at Detroit, Mich., on February 5th.

James D. Layng, vice-pres. of the Big Four, died at his residence in New York on February 12th, at the age of 74 years.

Elliott L. Sanders, trav. pass. agt. of the Rock Island at Ft. Worth, Tex., died at Dallas, on January 30th, aged 30 years.

George F. Hanford, trav. pass. agt. of the New York Central at Albany, N. Y., died on January 25th at the age of 74 years.

H. Holmes, for thirty-six years trav. pass. agt. of the Louisville & Nashville at Medina, Ohio, died on January 29th, aged 64 years.

H. B. Bigham, asst. industrial agt. of the Seaboard Air Line, was found dead on February 3rd on the Southern Railway track near Raleigh, N. C.

Richard Tull, treas. of the Philadelphia & Reading Railway and the Philadelphia & Reading Coal & Iron Company, died suddenly on February 8th, at the age of 56 years.

William J. Baer, formerly pres. of the Somerset & Cambria Railroad, a subsidiary line of the Baltimore & Ohio, died at Somerset, Pa., on January 28th, at the age of 82 years.

Sir Henry W. Tyler, deputy chairman of the Great Eastern Railway of England, and formerly pres. of the Grand Trunk Railway, died in London, England, on January 30th, aged 81 years.

SENATOR KNOX, EX-SECRETARY SHAW AND DEAN ROGERS OF YALE.

The extracts below are from three men of national reputation, and embody views upon the same general question of government policy. We are not at all surprised unless we might suppose the opinions of Senator Knox and those of Secretary Shaw transposed. The opinions of Dean Rogers we consider as held by many conservative people, who, nevertheless, believe that the widening conditions require every reasonable function of the Federal Government to be used in the interest of uniformity and harmony in interstate commerce. The speeches of the several distinguished men follow as appearing in the Chicago Record-Herald of February 12th.

GREAT GAIN TO NATION.

KALAMAZOO, MICH., Feb. 11.—United States Senator Philander C. Knox of Pennsylvania, addressing the Lincoln Club of this city tonight on "The People, the Railroads and the National Authority," strongly supported the policy of the Roosevelt administration in dealing with railroads and other great corporations. Senator Knox treated the matter calmly and judicially, tracing the development of the railroad and showing that the gradual supervision of interstate lines by the Federal Government had served to promote commerce, protect the people from abuse and afford them a comfortable means of travel, and to lend strength to securities put out by the companies themselves.

Senator Knox referred to the suits in the Federal courts against corporations that have had secret understandings with the railroads, declaring that this legal procedure by the government had established for the first time the right of the Attorney General to appear in a court of equity in behalf of large numbers of people and sections of the country affected by a violation of the law.

GREAT VALUE TO PUBLIC.

"It would be difficult to overstate the enormous value of this legislation to the public," said the Senator. "It did more to confirm the party of Abraham Lincoln in the affections and confidence of the people than any body of substantive law enacted since his death.

"This administration found a deficient and discredited body of law under which all sorts of commercial and social tyrannies bodly flourished, vitally affecting and undermining our national well being. When the record of its achievements is closed it will reveal a compact body of constructive, systematic and effective legislation remedying defects, supplying omissions and covering new phases in the field of national authority over interstate intercourse and its instrumentalities."

The Senator made a hit when in referring to the declaration by high railroad authority that it will be necessary during the next two years to spend $5,500,000,000 in extensions, he said "It is of the utmost importance that the $5,500,000,000 of securities shall purchase the full $5,500,000,000 worth of improvements, and not be subject to wholesale though surreptitious subtractions."

FIGHT OVER, SAYS SHAW

MARSHALL, MICH., Feb. 11.—Former Secretary of the Treasury, Leslie M. Shaw, in a speech this evening to the Republican Club of this city, compared the Roosevelt administration's task in enforcing the law to that of the country schoolmaster of fifty years ago, who subdued an unruly lot of pupils by locking the door, nailing down the window and then proceeding to "lick" each big boy in turn. The teacher opened a carpet-bag and took therefrom a revolver, a bowie knife and a blacksnake whip. The chastisement proceeded, and, having finished it, the warlike pedagogue unlocked the door and dismissed the school. There were no lessons that day and the teacher quit, leaving the labor of school instruction to his successor.

Mr. Shaw used this tale to bolster up his contention that it is now time to reassign the lessons without lowering the standard of discipline, but the successor of the man with the whip should possess nerve to meet possible outbreaks. However, Mr. Bryan is announcing, according to Mr. Shaw, the unwise policy of a foolish Hebrew king, "My predecessor chastised you with whips; if elected, I will chastise you with scorpions. My little finger shall be thicker than my predecessor's thigh." Mr. Shaw said that Mr. Bryan seemed to take the position that the knife should ever be kept on the table, the whip regularly cracked and the revolver discharged through the open window morning, noon and night.

"He fails to realize," said the Iowan, "that excessive, too frequent punishment is as subvertive of discipline as laxity. I wish to remind him, therefore, before he completes his third letter of acceptance, that corporal punishment is neither the purpose for which schools are organized, nor criminal prosecutions the end for which governments are instituted among men. Both are necessary at times, but it is never wise to give primary attention to either for any considerable length of time."

FEARS FEDERAL AGGRESSION.

LEXINGTON, KY., Feb. 11.—Henry Wade Rogers, dean of the Yale law school, addressed a large audience of students, lawyers and judges tonight in the chapel of Kentucky University on "The Constitution and the New Federalism." Dr. Rogers said that the country was threatened with a revival of federalism "that is more extreme and radical than the leaders of the old Federal party ever sanctioned."

This condition has been partly produced, he said, by the failure of the states to perform their duties. Great evils have consequently sprung up which the states will not or cannot properly remedy. Dr. Rogers said that to hold that the Federal Government could remedy matters better than the states was an assumption he was not prepared to accept.

"The laws of Congress have not secured publicity of accounts," he said, "nor prevented an overcapitalization and stock watering, and no system of inspection has been established over Federal corporations."

Moreover, in times past Congress as well as state legislatures has been under the control of special interests, the speaker declared, and he added: "One evidence of it is seen in the tariffs established from time to time under the pretense of protecting labor; tariffs have been fixed not merely high enough to cover the difference in the cost of labor here and abroad, but far in excess thereof, and so high that the great mass of the people of the country have been exploited that the privileged few might build up enormous fortunes."

Dean Rogers was introduced by Judge Henry S. Barker of the Court of Appeals and was welcomed enthusiastically.

The roads of Pennsylvania are observing the 2-cent per mile rate in that state pending a decision from the state supreme court. The state health commissioners have ordered sleeping car companies to provide sheets in berths sufficiently long to turn over at least two feet, also that porters must not brush passengers in the aisles.

In an address before the Agate Advertising Club of Chicago, W. H. Simpson, advertising manager of the Santa Fe, stated, cash payment for advertising is better than tickets or mileage books. He says: "A book of passes somehow does not seem as valuable as a pile of ten dollar bills, and the tendency is to use that kind of currency with a more liberal hand than Uncle Sam's kind. Personally, I would be glad if advertising were a thing of the past, except for the worthy local papers on one's road. Ready cash will buy more space and better position than its equivalent in tickets, three to one. And the ticket scalper is not tempted to become unmoral by a surplus of editorial mileage seeking a market."

H. C. BARLOW BEFORE THE TRAFFIC CLUB.

H. C. Barlow, executive director of the Chicago Association of Commerce, whose efforts in behalf of this organization are adding so much to his reputation, addressed the Traffic Club of Chicago at an informal luncheon February 6th. It is interesting to note from Mr. Barlow's remarks the rather emphasized position he takes relative to the public servant obligations of transportation companies. This is, unless carried to extremes, a reasonable attitude; but it is a very easy matter to become too much imbued with the opinion, after accepting the public trust theory as a fundamental principle, that the rights of private investment are only remotely incidental. It is, of course, more likely because of his prominence heretofore in railway life, and since connecting himself with commercial interests, and his elevated point of observation there, that Mr. Barlow can see the true line of demarkation between equity and confiscation. It can be equally true that his own knowledge of former conditions induces him to place as much responsibility upon the *shipper* as upon the *carrier* for the inequalities existing then.

We publish his remarks as they reach us as being worthy of serious thought, and shall refer to them in another quarter at more length and with more careful analysis.

Below a summary of his speech follows:

PEOPLE'S RIGHTS FIRST.

"The people cannot dispossess themselves of the right to regulate the railroads should they desire to do so. That right is as old and as fundamental as law itself, and it is a right which the people must exercise, whether they would or not.

"We cannot regard the railroads as gifted with any supernatural rights which supercede the rights of the people they serve, but it must be recognized that they are public servants, subject to the will of the public.

"If the railroads are to be saved from themselves, and if commerce and the railroads are to be saved from the mob, co-operation between the shippers and the railroads is necessary.

"The success of the railroads depends more upon commerce, infinitely more, than the success of commerce depends upon the railroads."

In speaking of co-operation between the two interests Mr. Barlow declared it could exist only upon the recognition that the railroads are a part of the general community.

"The people do not desire to dictate entirely how the business of the railroads shall be run, but the shippers do insist that when you are contemplating action of great importance to us you shall consult with us before such action is taken.

ASKS FOR JUSTICE.

"For example, you should not without conference decide to close the freighthouses of this city half an hour earlier than they have been closed for more than a quarter of a century without meeting us like men and discussing the question.

"Some time ago there came like a thunderbolt out of a clear sky the announcement of the cancellation of all reciprocal switching arrangements. Is that justice? Will anyone deny that this was unfair, unreasonable and should not have been done without full conference with the shippers?

"You cannot expect successfully to appeal to the country when you continually, from caprice or whim or desire to gain some advantage, and often without any material increase in your revenues, disrupt arrangements which have been in effect for years. The trouble is that we are constantly sticking pins into each other instead of trying to recognize and conserve each other's rights."

The Argentine Government asks for tenders on the Central North Railway construction, estimated at $2,069,000; rolling stock, estimated at $1,312,000, and material for locomotive and railway coach repairs, estimated at $29,000. Address Minister of Public Works, Buenos Aires, Argentine Republic.

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Official Organ, RAILWAY JOURNAL, Chicago, Ill.

THE RAILWAY AGENT AS A CITIZEN.

The position of the railway agent in his community has been largely regarded in connection with his official duties and his relations as a social factor have been overlooked. In the smaller cities and larger towns where individuals count for more than in the great metropolitan centers, the agent is, generally speaking, among the men best known, and socially, politically and morally a power. He is in touch with every phase of business and, unless of an unfortunate temperament, has a popular following. With very few exceptions he is an influence in favor of what is best in social and civic life for his town, his state and his country, and this means he is a valuable citizen.

Believing the foregoing in harmony with the truth the public capacity of his employment gives to what he may say or do an effect not to be found in the sayings or acts of those whose course of life is not so clearly in the public eye. His opportunities to observe humanity make him a reader of character and his opinions of people are the analysis of experience. A railway policy in any particular locality is much at all times and, sometimes, entirely the effect of suggestion from the agent.

If so important a result follows in business, the man who merits this respect from his superiors certainly has the real confidence of those with whom he comes in frequent and almost daily relations upon other questions. He is by his employment so interwoven with his section that, with the exception of men of great wealth who own the business of the community, he is the most potent force in every phase of its welfare.

All of these facts carry with them the responsibility of recognizing opportunity and being willing to accept with a proper seriousness the share of work local progress entails. We believe the majority of the agents do this. So thoughtful and so reflective a man as M. E. Ingalls, chairman of the Executive Board of the Big Four System, has said, "The best citizen is the man who lives the best he knows how, wherever his occupation may call him," and this is, we consider, the life and purpose of the average railway agent. This means no lack of ambition, but to do one's duty in the most effective and best way consistent with opportunity. More greatness of character and large influence have their origin in smaller places, where time to think and to know men is to be had, than in the rush of cities. While wider scope may come with tempting offers, it is well to remember that the growth and development calling for this attention are born in doing the best one knows how as opportunity demands. The railway agent has reason to feel his calling as one giving a large field for usefulness and content, and there is also the possibility that at any time an enlarging future may present new growth. If it may not, however, then to have been a leading factor in development to the extent of one's limits of environment, is not to have been a failure. W. B. B.

THE GENTLEMAN IN BUSINESS.

Much misunderstanding as to what a true gentleman is, leads to many absurdities, and when you hear a man say of himself, "I am a gentleman," you can nearly always take the statement with misgivings. College education, great wealth and influence in the town or community, are no guarantee of a gentleman. One of the most polite and naturally refined men we have ever known has only self-education and uses no grammar but his own. Consideration and thought for others, and the wish to treat all with absolute honesty and justice, injuring no one by intent, are the proofs of real gentility. It is so much the better if wealth and education accompany these traits, but they are not essential. Education is a great broadener of the mind, and wealth permits study and travel, and while these are benefits and pleasures too, they are not necessarily followed by a careful regard for the feelings and rights of others. We were recently shown a letter from a blacksmith in Canada, who lives in a small and isolated spot, wears the plainest clothes and lives in the simplest way, who is by nature a royal gentleman. He has in some way, even with the handicap of location, given himself an education, and can not only appreciate the best authors, but can write most interestingly and correctly. This statement may seem strange to some of his companions in the northern wilds, and yet it is absolutely true. There are many pieces of veneer passing for the solid material, though here is an instance of a rare jewel shining in a most obscure corner. There is a very old rule known as the "Golden Rule" and real gentlemen are the certain result of following its precepts.

W. B. B.

N. A. R. AGENTS CONVENTION.

The National Association of Railway Agents have just concluded one of the most successful conventions and most instructive itineraries ever enjoyed by a body of railroad men with their families.

As had been announced in former issues of the RAILWAY JOURNAL, the time for the trip was from February 8th to the 27th. The members met at Chicago on February 8th and left over the Santa Fe that evening on time, en route to Southern California. To enumerate all the pleasant incidents and the many interesting sights en route would require pages of a good sized book. But suffice it to say that the entire trip to California from Chicago, the trip from California to New Orleans, and from the Crescent City to Chicago, was one grand tour of pleasure, education and business success. The scenes and social pleasures were well worth more than the cost of the trip.

It has been the sense of the officers of this association to arrange such plans for the members every year, believing that they are necessary for the proper education of an ambitious railway agent.

The convention proper was held at Los Angeles, where amusements were also found in endless quantities. In fact, it was hard to know where to begin and when to stop. The hospitality of the people in that and surrounding points was all that could be anticipated elsewhere.

The business part of the convention was taken up by addresses from railway officials and others, and the reports of topics with discussions, etc. The program, arranged in the way of topics, was as follows:

1. "Railroading Twenty Years from Now," J. E. Van Deusen, agent, Erie, Gowanda, N. Y.

2. "Would Government Ownership of Transportation Lines be of Benefit to the Employe, More so than Under the Present Ownership," E. E. Flack, agent, Vandalia, Effingham, Ill.

3. "By What Method Could Foreign Cars be Handled that Would be an Improvement Over the Present Per Diem System?" C. Morrison, agent, Erie, Akron, Ohio.

4. "Has the Lowering of the Passenger Rates Increased the Travel and Earnings of the Roads in the Different States Where the Rates Have Been Reduced, and is the Disposition to Lower Rates of General Benefit to All?" A. N. Deitz, ticket agent, B. & O., Cleveland, Ohio.

5. "Is It Practical for a Bonded Man to Belong to a Labor Organization?" E. F. Saur, Vandalia Ry., St. Louis, Mo.

6. "Report on Official Organ," J. E. Gray, Pennsylvania Ry., Cambridge City, Ind.

TRADE WITH THE ORIENT—RUSSIA AND JAPAN COMPARED.

RUSSIA POSSIBLE OF BEING OUR GREATEST MARKET FOR RAILWAY SUPPLIES AND AGRICULTURAL IMPLEMENTS.

American sympathy in the recent war between Japan and Russia was, in many cases, undoubtedly with the former. This was because the most impressive writers were persistently calling attention to the oppression of Russian oligarchy and praising the modern civilization of Japan. It was the basis of opinion of the most outspoken writers that success for the islanders in the far east meant the "open door" for the trade of the United States. The vast possibilities of Russian requirements, once the demand for improvements of every sort was properly in force, were completely overlooked in the tide of so-called humane impulses.

Russia, with her millions of acres of tillable soil not even partially engaged, with a population capable of using more of our products because of the climatic conditions that prevail, with a great railway system of thousands of miles to construct, equip and operate, and with less of the tendency to produce from its own manufactories, was lost sight of as a market. The great friendship of the Japanese people, the obligation they felt for the kindly offices of this government and its amicable effect, it was freely stated, meant a large and profitable preponderance for this country in Oriental trade. Today we face the very possibility of disagreement the more thoughtful student of the Asiatic race foresaw at the time of the contest. The keen and far-reading mind of the conquering nation, looks to its own future, with no ultimate division of any commercial results that can be maintained intact for itself by the prestige of land and naval power.

Further than this, recent experiences are of a nature to convince us that our own holdings on the edge of Japanese territory are not entirely free from the jealous eyes of the cherry blossom kingdom, full to overflowing of a native population, and seeking new homes for the surplus. It is not impossible that even the ally of Japan, England, to whom we wish to be the best of friends for all time, may suffer for her connection by a reactionary movement in her Indian possessions. It may be noted that probably England's relations with Japan were brought about to forestall Russian interference in India, but if it comes from another source it will not be surprising.

We are not in the least degree apologists for the persecutions Russia may be sponsor for, nor have we anything but criticism for her refusal to let freedom and education take the same form as English and German civilization, but these were more likely to follow quickly her predominance in the far east. Barbarous as may be her treatment of many of her subjects, general intelligence and the reforms which follow are more likely in Russia prosperous than in Russia subjugated. In this great nation in an era of prosperity, seeking the full expansion of its resources, and with a reasonable reciprocal agreement with us as to trade, nearly every form of manufactured product we can make might find a market. The trade we can now get through Japan only until such time as craft and cunning close the avenues for us, would, under Russia, be permanent in character and regularly growing. If we wish a large foreign market we ought to seek the territory capable of greatest development, and with the most reliable people for interchange Sentimentally there is every reason for us to remember Russia's treatment of us as a government, and our conclusions are likely to be very favorable when we reflect upon the question of her friendship.

There is no disposition to proscribe the immigrant from Russia to this country, for as a farmer, laborer and business man, he does not incite the animosity of our native citizen. In the case of Japan it is a task for the best diplomacy to restrain the racial antagonism incited by the habits and customs we can never thoroughly understand, much less appreciate.

Our trade with the Orient is more or less of a myth, because we make so many things the population cannot use, and the Japanese propensity to imitate, soon produces as much as the people require in their own country. Once they begin to be producers, the scale of wages throws us out of the running in competition. With Russia successful and maintaining her prestige rather than Japan, her own development means more commercially than any present prospects in China or Japan, and this latter chance would be equally as good under Russian influence, and to be also added to the growth of the Czar's dominions in the final summing up. In all this there is nothing pessimistic. We must submit to the results of changing civilization, but there is no need for the white man to ignore his white brother across the seas, to become hysterically sentimental about another race of men who, when they recover from debilitated finances following the fortunes of war, are likely to seek other lands to conquer.

CONSTRUCTION AND IMPROVEMENTS

A branch line between Blockton and Selma, Ala., is contemplated by the L. & N.

The M. K. & T. is planning to make heavy expenditures in reducing grades and improving its roadbed in Oklahoma.

A dispatch from Lancaster, Tex., reports that the Trinity & Brazos Valley is to be extended between that town and Waxahachie

J. F. Keith, president of the Beaumont & Saratoga Transportation Co., Beaumont, Tex., states that they have recently purchased rails for 15 miles of road.

The Oklahoma Central has about completed its line between Purcell and Chickasha, Okla., connecting the main lines of the Santa Fe and the Rock Island in Oklahoma.

J. H. Burroughs, engineer of the Robert Lee & Ft. Chadbourne, states that the company will resume construction work early this spring and the line is to be completed.

The Missouri Pacific has been making extensive expenditures on track improvements the past year and the company proposes to expend about $100,000 on the Wichita Division.

The Panhandle Short Line is arranging to construct a road 300 miles long, extending from Northwestern Texas south, with general offices at Hereford, Tex. It is stated that contracts are to be let this spring.

W. I. Allen, vice-president of the Port O'Connor Railroad, which is building out of Victoria, Tex., states that they have entered into a contract with a Chicago firm for extensive construction work this spring and summer.

The West Texas & Northern Railroad is receiving rolling stock and material for track construction of the road which proposes to build between Amarillo and San Angelo, Tex. S. G. Bon Durant is in charge at Stanton, Tex.

The St. Louis, Springfield & Southwestern, of which J. D. F. Jennings of Oklahoma City is counsel, is reported to be amply backed financially for construction between Sallisaw and Lawton, Okla., 250 miles. The company has a capital stock of $17,000,000

President J. T. Blair of the Little Kanawha is quoted as saying that surveys have been completed and construction is to begin soon on that road and the Buckhannon & Northern, which is extending to Pittsburg, Pa. S. D. Brady of Parkersburg, W. Va., is chief engineer.

Thos. Fitzgerald, formerly general manager of the B. & O., is now a leading factor in a company proposing to build an electric line between Pittsburg, Pa., and Clarksburg, W. Va. Construction work is to begin early this year. The road is to be equipped for freight and passenger business.

A representative of the banking firm of Etienne, Muller & Co. of Paris is in this country in the interests of the Missouri, Oklahoma & Gulf, which he states is to be built between Kansas City and Denison, Tex. Wm. Kenefick of Kansas City is president of the M. O. & G. The road now operates 101 miles.

Consul L. Edwin Dudley of Vancouver reports that some American capitalists will commence the construction of a standard gauge steam railway from Kamloops, British Columbia, to Salmon River, a distance of 40 miles, early next spring. The company also propose to erect a large plaster of paris plant at Kamloops.

A recent issue of the Seattle Times states that construction work on the North Coast Railway in Eastern Washington will be started with unprecedented vigor March 1st, and the Strahorn rails will be laid this summer between Kennewick and North Yakima This is the story brought here from the Columbia River Basin by James J. McKay, who is operating a large construction camp for an irrigation company on the banks of the Columbia River north of Kennewick. It is believed that this company is backed by the Canadian Pacific

Consul W. T. Gracey of Tsingtau writes that three of the wealthiest men of Ningpo have offered to subscribe $7,470,000 for the construction of the Chekiang-Kiangsu Railway, if the line can be brought back into the hands of the Chekiang Railway Company, a Chinese corporation, and they also demand the right to construct a branch line entirely with capital subscribed by the natives of Ningpo. At a meeting of the Chekiang gentry, recently held in Shanghai, to raise funds for the line, and thus make a foreign loan unnecessary, $16,434,000 was subscribed, the city of Ningpo subscribing $5,229,000. It is believed that there are good chances for American firms to figure on supplies and equipment.

The report of the Grand Trunk Pacific shows that of the army of 25,000 men at work, the prairie section now under construction will be completed first, and 794 miles between Winnipeg and Edmonton is to be in operation during the coming autumn. Steel has been laid on 322 miles and by the commissioners for the government section on 75 miles The expenditure on the government section to date has been $20,000,000. The commissioners have 955 miles of the eastern section under contract, while the company has laid track on 80 miles of the Lake Superior branch The mountain section from Edmonton to Prince Rupert, on the northern British Columbia coast, is the most difficult to build and will be begun in the coming spring. The line of over 3,000 miles is to be completed by December 1, 1911.

Report from Guthrie, Okla., states that the largest railway enterprise now being pushed in Oklahoma is that of the St. Louis & Oklahoma, which is projected to build from St Louis to McAlester, Okla., a distance of about 150 miles. The company is capitalized both in Missouri and Oklahoma at $10,000,000. The construction work is being done by the Monett and Southwestern Construction Company, which is to issue $150,000 in bonds with the privilege of increasing the issue to $10,000 per mile. The construction company has already started work southward from Southwest City, Mo., and it is expected that work will be begun with 200 teams at Tahlequah, Okla., within a few days on construction northward toward Southwest City. The City of Tahlequah at a recent meeting agreed to give a bonus of $20,000 on condition that construction begin within two weeks. The road is projected to run from St. Louis to Tahlequah, Muskogee and McAlester in Oklahoma, and through Texas to Mexico. The section of the road now financed is that to run from Muskogee, Okla., to Joplin, Mo.

CONSUMPTION OF POLES.

The U. S. Forestry Service states the information concerning the consumption of poles during 1906 is based upon the number of poles purchased rather than the actual number produced during the year. It seems safe to assume, however, that the two were practically identical. Inquiries were sent out to more than 6,000 companies operating telegraph and telephone lines, electric light and power systems, trolley and street railway lines, and to railroad companies which operate their own telegraph or telephone lines. Practically all replied. The number of poles purchased during the year, as shown by these statistics, was 3,574,666, valued at $9,471,171 at the point of purchase. These figures do not include poles less than 20 feet long. Shorter poles are used for local lines and for temporary work, but they constitute only a small percentage of the total.

WILL RAISE CROSS-TIES.

Owing to the growing scarcity of timber and railroad cross-ties, a number of the railway companies have decided to make a special effort to grow timber for ties for future use. The Pennsylvania was among the first to thus engage in tree raising, having employed a forester to look after this special work. Already half a million trees have been planted by the company and nearly a thousand acres of land are yet to be stocked with young trees, mostly white oak and chestnut. The Santa Fe has purchased a large tract of land in Southern California, which is to be stocked with eucalyptus trees, which are considered good material for ties. The Delaware & Hudson is another eastern road that proposes to raise timber for ties, and has arranged for a department head to foster this undertaking. Some roads are looking into the systems of creosoting for the purpose of preserving new ties, making their life several years longer. The steel and concrete cross-ties are still in the experimental stage. However, it is believed that the roads will be forced to one or the other before many years

MECHANICAL

NOTICE.—Communications are requested for publication relating to locomotive and car designs and equipment; also to special tools to facilitate shop work, or any subject tending to promote the efficiency of the Mechanical Department of railways. All practical men are earnestly requested to contribute early notices of official changes and additions of new equipment for the road and shop, both by purchase and construction.

Description of novel and meritorious devices recently designed that are of general interest will be published in our reading columns free of charge.

All communications relating to this department must be addressed to the Mechanical Editor, Railway Journal, 66 Sherman Street, Chicago, Ill.

BORING MULTIPLE CYLINDERS.

BY E. J. McKERNAN, TOPEKA, KAN.

The usual locomotive cylinder boring machine consists of a horizontal spindle and table permitting of no adjustment at all, or only lateral adjustment. With these machines of the old design much time is consumed in properly setting the cylinder so that the boring bar will strike the true center; and high speeds and rapid cutting are not obtained. These disadvantages are, of course, magnified when cylinder castings having two or more cylindrical chambers are to be bored and faced, because the work has to be set twice, and the cylinders and valve chambers (where piston valves are used) must be truly parallel with each other. If the cylinders should be out of parallel the working of the engine will throw great strain upon the guides with consequent detrimental effect on the locomotive machinery, causing undue wear, strain and trouble.

The machines of the old single-bar type, designed when simple slide valve cylinders of not more than 18 or 20 inches in diameter were the prevailing type on locomotives, were adapted for use with the slow speed carbon steel which was the most efficient material for making cutting tools at that time. The mechanism of these old machines was simple, but the driving and feed gears were weak cast-iron affairs which drove the tools along at an unprofitably slow speed. Later, as the art of cutting materials was on a more scientific basis, and tool steels of greater cutting capacity and speed were introduced in shop practice, attempts to work these new cutting tools to their proper limits in boring machines of this class would result in stripping the gears, or other injury to the machine.

With the later developments in high-speed cutting tools of great capacity, and in locomotive construction, with engines having piston valves and often compound cylinders on the Vauclain principle, or on the four-cylinder balanced compound principle, a machine capable of the most effective service under the latter conditions make a shop necessity. In order to meet this demand one manufacturer produced a three-spindle machine which would require but one setting of the work and which would insure the parallel boring of all cylinders and chambers. While this type of machine possesses a number of advantages for certain classes of work, the single-bar machine has been found superior for general railroad practice. A comparison of the two types of machines shows that the single-bar has less gearing and is the simpler machine of the two and is consequently much easier maintained. On account of the lesser number of parts, the single-bar machine is the most economical to drive, hence the power required can be obtained from a small motor. Where there are some advantages in boring three chambers at once it has been found in practice that chatter in one tool is transmitted to the other tools, causing a rough finish in all bores. It is apparent that this is entirely obviated in the single-bar machine. From experience in the ordinary railroad shop it has been found that the single-bar machine is best suited to locomotive work. It is economical in operation, in power consumed and in adjustments, and owing to the less machinery involved, the single-bar machine is the most economical to buy.

Recently there have been built several heavy and solid single-bar machines, with the boring bars capable of the heaviest strains, and of such a design as to insure working the cutting tools to the very highest capacity. The accurate setting of the work, especially in connection with multiple cylinders, is brought about by the application of a table having both lateral and vertical motion, and these machines produce very excellent work. But the examples of them thus far constructed are heavy, ponderous affairs, costing a great deal for the weight of metal in them alone, and they do not have the universally wide range for accommodating all classes of locomotive cylinder boring that should be a requisite in modern machines for this purpose. Their first cost is high, and the best results are not always obtained from them, not to speak of the relative large amount of shop room required.

At the Topeka shops of the Santa Fe has been built a cylinder boring mill which will answer all requirements in regard to the boring of cylinders for all classes of compound engines. This machine is also adapted to bore cylinders on engines which have one cylinder or chamber at an angle to the others. All cylinders or chambers may be bored at one clamping of the cylinder by the mere raising or lowering of the table. This table has an elevating movement of 37 inches; also has a cross travel of 35 inches. The table

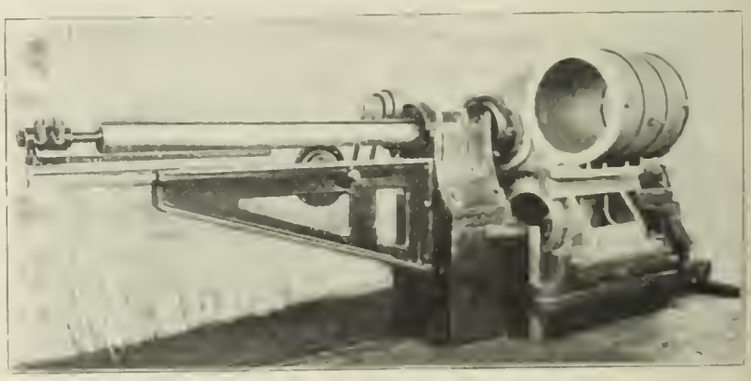


FIG. 1. MULTIPLE CYLINDER BORING MILL.

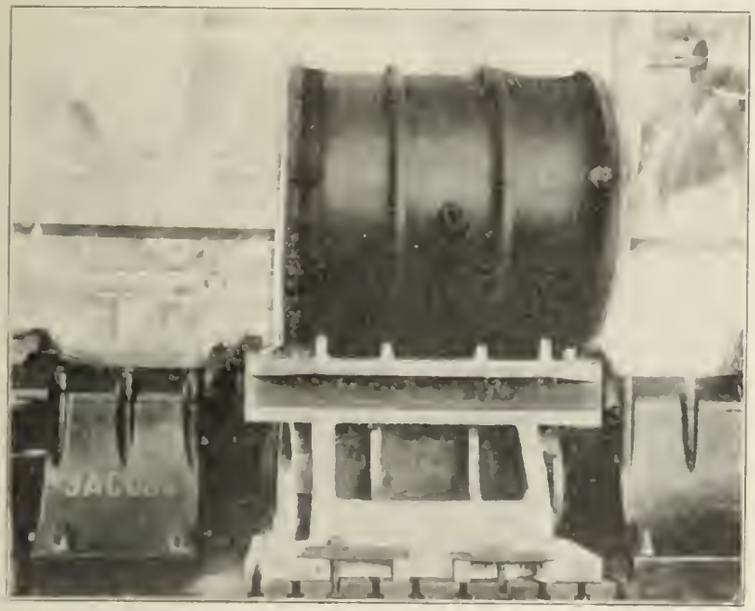
which has the cross travel movement has also a swiveling motion by which a range of 15 degrees incline may be had. (Figure 1.)

This new boring mill is direct motor driven. The table is raised or lowered by power connection with the main motor through beveled gears and clutches, handled from the operator's side of the machine. All the mechanism is of the latest design and is strong and durable, all gears being made from good gray iron, all bushings

of phosphor bronze; the boring bar is 7 inches in diameter, and is made from open hearth steel, and is fed through the cylinder by means of a spur gear and rack, which makes it very rigid in operation and gives a very smooth bore.

One of the facing heads on the machine is made so that it will move along on the bar and is driven by means of a 1-inch key and set screw, and will pull any kind of a cut that is put on the machine.

The facing heads are fed by means of a star feed attachment. The screws that elevate the table are made from soft steel and are 5½ inches in diameter and are ¾ pitch, the screws set at right angles to the boring bar, making everything rigid. The total weight is about fifteen tons, and the machine takes up floor space of



223 square feet, having an extreme length of 21 feet and an overall range in width of 14 feet.

This machine is capable of boring a three-chamber compound cylinder in fifteen hours, or in a year of 3,000 working hours you can bore 200 three-chamber compound cylinders. You can also bore a simple cylinder in three hours, or 1000 in a year of 3000 working hours.

On the old style boring mill it has taken from twenty-six to twenty-eight hours to bore a three-chamber compound cylinder. It will be noted that by the use of a modern boring mill of this kind eleven hours can be saved on each three-chamber compound cylinder, where it used to take from eight to ten hours to bore a simple cylinder. One of these cylinders can now be bored in three hours on this machine, thus making a saving of five hours on each simple cylinder bored, or over $1,500 per year in operator's wages alone, in addition to increasing the machine capacity from only 375 cylinders per year to 1000 simple cylinders, giving an output of 625 more cylinders per year. Where only 115 three-chamber compound cylinders could be handled with the old style boring mill, the new machine will bore 200 cylinders, thus increasing the output of compound cylinders about 77 per cent.

If a machine which bores only one chamber of a locomotive cylinder casting at one time is to compete successfully with one which can bore three chambers simultaneously, it must not only bore rapidly, but it must be constructed so that only one setting will be required to bring the chambers into position to bore. This arrangement has been attained in the machine described in this paper, insuring that after a cylinder has been lined up and clamped on the table any of the chambers may be brought exactly into position for boring, and making it impossible to bore two chambers out of parallel unless desired.

A machine of this design has been in operation for some time at the Topeka shops of the Santa Fe, and is giving first-class satisfaction, both in its convenience in handling and in the lower production cost. It is understood that arrangements have been made for the Tool and Railway Specialty Manufacturing Company of Atchison, Kan., to handle machines of this type on the market.

MAKING LOCOMOTIVE FRAMES.

(Continued from February.)

OPEN DISCUSSION BEFORE THE INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.

MR. MCCANE.—We put in the three-fourth piece, but we never could get a frame apart but that one part would go up or down; so it seemed we could not get good results in that way. I went to work and put a temporary furnace under first and then cut a V clear through to the center; then we got a portable forge and set it beside the engine and heated a dutchman, using a ram, just as the other one mentioned. We took two heats; put one dutchman in first and then the next one, and we did not have any trouble. On the 16th of July we started and on the 27th we got through. We welded eight frames. I claim they were just as good as a weld.

QUESTION.—Do you use oil?

ANSWER.—Yes, kerosene oil.

QUESTION.—Were they steel or cast iron?

ANSWER.—There was one cast-steel frame 5 x 4½, broke right in the front jaw. The iron frames are the best to handle. I would sooner handle them than cast steel.

WILLIAM PRICE.—In regard to welding frames under the locomotive, I have no doubt it has been demonstrated that the Thermit is a success, not only on frames but on rods and driving wheels and various parts of a locomotive as well. But I would like to hear from some of the older and more experienced members here in regard to welding frames with oil.

MR S. UREN.—I believe Thermit welding is a separate subject.

MR. GEO. JUDY.—I do not know whether they are waiting for me or me waiting for them, but I certainly think everybody ought to take this subject up. I do not think there is a subject more important than frames. The broken frames on engines are something dreadful. We are up against the proposition, and up against it hard. It causes delays to our engines and we are pushed hard to get them out.

If an engine comes in for classification repairs, where it has to have a general overhauling, we take the frame off of the engine and repair it If an engine simply breaks a frame and is laid over, for the first two or three breaks in a frame, we take it to the drop pit and block the weld and weld the frame. If it comes back the next day broken in another place, we do the same thing. We keep the frames running all the time until they come in for classification of repairs. As I have told you before, we take the jack apart; if the frame is broken in the top roller, we cut the lower brace, shove the frame back not less than three-fourths, and put the piece in. We build a furnace, leaving an opening of a few brick in front. We use natural gas. We heat up to a good heat; we put a ram in the back end of the frame ready to upset the frame. We do not put any clamps on to hold it because it holds itself. When hot enough to weld we tap with a ram It is not necessary to hit hard. We tip it back and then take out the brick and work against that piece with a pneumatic hammer with a long bar. We work mostly from the back first. We heat from the front and it keeps the back of the frame usually a little hotter, and work from the front in the same way; then we put in a chisel bar and trim off If we can part the frame enough to put the brace in we part it as far as possible, probably three-sixteenths of an inch; then we cut it, throw up the high part, make a V and extend down to allow metal enough. The lug will be on the V that hangs on the top frame and the two pieces hang in. We open the V's and keep them apart from the frame as much as possible, not less than one-fourth to three-

eighths, allowing the flame and heat to pass up through. When hot we take a sledge or a heavy bar and drive the V back in. We take a pneumatic hammer and weld up. We do not do any welding after the furnace is dropped down, but weld altogether in the furnace.

We have been very successful. They do not break in the weld, but often break very close to it. The question of breaking in the weld does not concern anybody, because they are just as liable to break four feet back. We weld our braces with a V weld, but before we make a weld on a brace we heat the limb and throw it ahead.

Mr. Uren.—I understood you to say that you loosened the end of the frame so that you could upset with a battering ram. Wouldn't it be as easy to take frame off after it is loosened up?

Mr. Judy.—I said that we shoved the frame back. We do not loosen the frame. We drop the wedges so as to allow all the play we can. We do not take out any bolts. We cut the bottom brace, and we do not have to refit bolts. We cut one to relieve the strain. If we didn't we would have a strain on the top weld.

Mr. John Connor.—In case your frame is broken about the rocker box, what do you do?

Answer.—We take the rocker box off and weld it right there. We cut the brace right below, where it is convenient.

Question.—How much can you get in there?

Answer.—We put in there three-fourths of an inch.

Mr. W. C. Scofield.—What do you shove them apart with? I broke all the jacks we had and they did not shove.

Mr. Judy.—Did you ever try a good wedge? We have a bolt pusher: it is made to put right in the space and work and screw and shove. We find that better than a jack. I refer Mr. Connors to Mr. Mould. He was there and saw that we separated frames. That is what we call a butt weld. If you write Mr. McCaslin, he will tell you whether we split frames or not. We will put our welding on engines up against your welding of frames on anvils. As to Mr. Uren's idea of taking the frame down, it certainly costs a great deal of money. You cannot take an engine down for $5, nor for $25; nor can you take it down and put it back for $50, and you almost spend $100 when you take it down. I can weld you your frame on the engine ready to go out for $10 and I do not believe you can do it that cheap in the blacksmith shop.

Mr. Uren.—He thinks I argue against welding frames on the engine. I am in favor of it. You said that you loosened up the frame so you could upset it, and I asked the question if it wasn't as cheap as to take it off.

Mr. Judy.—Was my explanation satisfactory to you in that regard?

Mr. Uren.—Yes, but I did not want you to understand that I was opposed to welding on the engine.

Mr. Wm. Perkey.—We have welded a number of frames on the Cincinnati division of the Big Four with oil and had good results. I have not had one come apart, nor break anywhere near where they were welded. I welded a frame on an Atlantic type engine in the back and it has been running two years, and is as good today as it was the day I welded it. I put the front end of a frame in one of the Richmond class of engines—on the cylinder back of the bumper—I put a piece on and it is just as good as any time.

I have welded frames right in the front jaw back of the cylinder and none of them have come apart yet. The idea that you cannot separate your frames so you can get one-half or three-fourths of an inch in is wrong. I say it can be done the way we do it. We put a wedge in the center of the frame. We drive the wedge down and the wedge will separate that frame, because you can put force enough on there. We put a jack in and hold the frame there. We do not jack them apart. I have had them break in the tram mark. I consider oil all right if you have the right process. I do my welding before I take the furnace down while I am working my burner on both sides. I am satisfied it can be done with oil right on the engine. I welded a break on an Atlantic type engine and I made that weld for $13.50, and that frame could not have been taken off and put back for less than $150.

Mr. Hughes.—On the Big Four I have seen the same thing that they have just spoken of. They did their work easily and accurately. I stood there when it went to the furnace. They had a little horse made that they put under the frame; they had a small V cut out of the slab right over the jaw and they built the furnace on top of that. They cemented at the outside and on the outside the brick were loose; as it got hotter they pulled away the loose brick; they used a little ram on each side and had a long spoon with which to clean out the dirt, and it was just as soft as any heat that ever came out on an engine. When they got through with it the frame was about three-sixteenths of an inch longer. They warmed it in the leg, put a small jack in the center and just pressed on that to get it short enough. I was over when they trammed it. I went from there to another place, and that frame was five inches square. They did the job satisfactorily. It ran about six months and afterwards broke on a switch engine on a long rail. We have fixed them over at Lima, and I think the secret of the whole thing is to get it perfectly hot and ram it on each side with a little ram; they are twelve or fourteen feet long, and the body is only about one and three-fourths inches. They had a tank about five feet high and eighteen inches in diameter full of oil. The burner from each side went right against the furnace and they did a perfect job.

Mr. Uren.—I do not wish to be understood as opposing welding on an engine by any means. I presume we have welded over 150 frames; but I do maintain that we cannot make as good a job on the engine as we can on an anvil and steam hammer. If we can make as good a weld on the engine with a butt weld, why not weld the frame on the anvil by the same process? Is there any man in the convention that would make the same kind of a weld on the anvil?

Voice.—I do it just the same.

Mr. R. A. Mould.—In the first place the frame is not in the same position on the anvil that it is on the engine. The metal becomes disintegrated and 15 per cent of the tensile strength is lost on account of the iron being brought to a high heat and not laminated. There is no chance for lamination on an engine.

Mr. Judy.—Yes, you have. When you upset three-fourths of an inch where does your metal go? You hammer it all back again.

Mr. Uren.—You have the pressure of the hammer there. That may be all right. I am in favor of welding frames on an engine in emergency cases. Do the best you can in emergency cases, but the moment an engine comes in for general repairs, take the frame off and bring it into the blacksmith shop and send it out as a new frame. I find that we have better results with iron to iron than steel to steel. It does not occur to me that because a frame breaks it is the fault of the blacksmith. The vibrations are taking place continually, and I think it is the fault of the track. Vibratory strains are the worst enemies of frames. The engine reaches bad places in the dark, it goes up and down, and no blacksmith can make that frame stand for a number of years. It cannot resist the vibration. I shall speak more on this subject when Thermit comes up. I believe I made the first Thermit weld that was ever made in California, some three years ago. When a frame will break in the solid material sometimes on a new engine, can we mend that frame and make it run for two years, when the frame broke in two weeks when new? Are we expected to make them stronger than in the first place?

Mr. Perkey.—I do not consider the way I weld our frames that they are altogether an upsetting or butt weld. I might give you a little illustration of the way I make my weld. I put a V in on each side, dovetailed. I put a wedge of about one-fourth by about five inches and I have a taper from one-half to three-fourths that way (indicating); I have a lap of good material right across the break; we put a burner on each side of it and weld it together.

Mr. Perkey gave a blackboard illustration.

Mr. Mould.—Does the oil strike the iron or does it go under it?

Mr. Perkey.—I blow right in each side of the dovetailed piece and allow the oil to hit the piece.

Mr. Scofield.—I must take exceptions to what Mr. Judy said about frames. I do not want to go home to my master mechanic, who reads these proceedings, and have him see just what has been said about expenses, as it does not apply in all cases. Mr. Judy says that any engine coming into his shop that does not need classification or general repairs, he welds it on the engine, no difference where it is broken or how it is broken. I say that the Illinois Central is building a class of engines now, and the frames are so built that there isn't any man who could weld them without taking them down, I do not care who he is or where he comes from. They break right back of the cylinder; there are two front sections, one comes under the top of the frame and one on the bottom of the cylinder. He may weld that front section, but he has to take it apart.

Question.—How far from the cylinder?

Answer.—About two feet or may be thirty inches. He will weld it altogether or he will take it down. If he will correct his remarks and say he does not weld them all but that he welds all he can, I will agree to them, as I do that myself.

Mr. Judy.—There is such a thing as an impossibility. You do not think I would mend that frame on top of the cylinder.

There is reason in all things except plum pudding. I say where we can get at it. I will show Mr. Scofield that we will weld this frame here. (Blackboard illustration.)

MR. SCOFIELD.—That is all right.

MR. JUDY.—We haven't anything costing as much money as the frame question to the roads, and I would like to know how many are expericncing trouble with the steel frame, and where is your trouble on engine frames?

MR. G. W. KELLY.—We have 130 engines equipped with steel frames. My report last year said that we welded one steel frame with Thermit. We have not had a broken steel frame to weld since that time. We have made sixteen or seventeen welds since last convention on wrought iron frames, and of that number two-thirds were due to defective welds, and imperfect workmanship is what has done injury to wrought iron frames. The steel frames are reinforced with large fillets. All new frames are now steel.

TOOL FOR WELDING CHAINS.

C. K. Abbott, master smith of the Cotton Belt, at Tyler, Tex., has favored us with illustrations of his device for welding heavy chains, particularly switch

chains. The illustrations speak for themselves. One view shows the tool with loose half of die on top, and

the other shows appearance of device in place as if weld had just been made. Should anyone desire sketch, or any other information on the device, same will be freely given on request to Mr. Abbott.

THE ERA OF THE STEEL CAR.

Outside of buildings and bridge construction work, there is no field where steel has won greater favor than in car construction. It has been scarcely ten years since the first steel gondolas and flat cars came into use. Today there are thousands of them throughout the country, and quite a number of cars for passenger service are being used or are in course of construction. The development of the steel passenger coach promises to be rapid, as it is a feature that meets with the favor of the public as well as the railway companies.

At the January meeting of the New York Railroad Club, A. M. Waite, formerly superintendent of motive power of the New York Central, presented a paper in which he gave some interesting statistics and arguments favoring the steel car. He presented some information relative to the different methods of constructing steel cars and then drifted in to the special merits of them from a utility standpoint. According to Mr. Waite's statistics, which, no doubt are about correct, the steel car has the best end of the argument. Quoting from Mr. Waite:

"With now some ten years of extensive use of steel underframe and all-steel freight cars the earlier arguments in favor of their almost universal adoption have been strengthened and broadened. In a paper read before the New England Railroad Club in 1904 by John F. MacEnulty, the writer stated that: 'It has been determined by two of the largest railway systems of the country that the drawbar pull required to move a ton of freight in a properly constructed car of 100,000 pounds capacity is 24 per cent less than that required to move the same load in an average wooden car of 60,000 pounds capacity.' This is not only a strong argument in favor of steel car construction, but also for the use of large capacity cars. Ease of renewal of the worn or broken parts in cars of streel construction is a feature of considerable advantage in favor of such cars as compared with those made of wood.

"Another great advantage from the use of steel cars or cars with steel underframes in freight service is developed when trains are wrecked, for steel cars in wrecks withstand successfully punishment which would mean the total destruction of wooden cars. Parts bent or torn in damaged steel cars can be readily renewed or put back in their original shape at a comparatively reasonable cost. The cost of steel cars per ton of hauling capacity in general is less than with wooden cars. In cost of maintenance the steel car has a decided advantage. Steel cars are so much less liable to damage in service that in many cases where a wooden car would be rendered unfit to continue in use a steel car will be free from any serious defects and will continue in service as a money earner and not become a money loser. The life of wooden cars built today must necessarily be shorter than those built fifteen years ago, for at present it is impossible to get lumber anywhere approaching in quality that which was required in first-class freight cars in 1892.

"The demand for cars has, during the past few years, been so much in excess of the supply that cars have not been allowed to be taken out of service for needed repairs so long as they could be kept going and pass inspection for safety. Under such conditions of service the wooden car has suffered very materially and has depreciated rapidly. The increased cost of all kinds of material going to make up the wooden car has so added to the cost price that one of the principal arguments against steel cars has been nullified. The length of trains and the increased size and weight of the average cars in the trains, together with the very great increase in the size of the locomotives during the past decade, has subjected the cars to such increased strains as to make the strength of the wooden car of ten years ago insufficient to give economical service in heavy trains on our trunk lines, and the loss of service in connection with wooden cars, due to the performing of absolutely necessary repairs, makes the continued construction of the so-called wooden cars, for general use and interchange on trunk lines, an uneconomical proposition, and one which cannot longer be justified except on the narrow policy of a temporary saving of slight amount in first cost, regardless of the following increased cost of maintenance, and increased amount of depreciation, which the officers ordering such cars do not expect to have to justify during their own terms of office.

"Trains are now frequently being made up containing from sixty to eighty or more heavily loaded cars, weighing from 3,000 to 4,000 tons, and the severe service and strains to which the cars are subjected make the cost of necessary repairs to the wooden cars increase constantly. On roads having such heavy traffic and handling such long trains, or whose cars are likely to be handled in such trains, they can ill afford to spend much money for the heavy repairs and maintenance of wooden freight cars of under 60,000 pounds capacity, and it is clearly no longer profitable to build such cars, which are necessarily too lightly framed to operate in conjunction with the heavy capacity steel car

"As showing the conclusions arrived at on one of the prominent railway systems of the country, the writer has had before him the report and recommendations made to the chief executive officer of the company at a recent date. The report

recommends the retiring of 4,600 coal and coke cars ranging from nine to twenty-three years in age, and having from 40,000 to 60,000 pounds capacity. It was shown that these cars average a cost of $95.98 per year for repairs, or 37.8 per cent of the average total value of the cars. The tonnage of these cars being compared with tonnage of new steel cars which have been used by the company in large numbers, when considered in connection with the first cost and the cost of maintenance of steel cars, and based on experience, showed conclusively that the company could buy 3,000 new steel cars having a total capacity 20 per cent greater than that of the 4,600 wooden cars, and out of the amount that it would cost to maintain the wooden cars for one year they could pay 6 per cent interest on the cost price of the new steel cars and have remaining over $215,000. A desire for the greatest economy for the owners of the roads will assure the substitution of a lesser number of large capacity steel cars for old light capacity wooden ones.

"Although steel underframing and practically all-steel construction have been used for a number of years for about all of the various types of freight equipment, yet it is only during the past three years that much has been done in this country to adapt such construction to the various styles of passenger equipment. Observation and inquiry made by the writer in Europe during the several recent yearly visits have shown that the use of steel underframing for passenger equipment is now quite general, both on the continent and in Great Britain; but the use of practically all-metal construction has been quite limited in the past, abroad as well as in America. The many serious railway accidents of the past few years, and the use of electricity as a motive power, both as a substitute for steam in heavy railway service as well as its use for lighter service in subways and elevated railway traffic, has given the design of all-metal cars for passenger transportation a rapid impetus. Very satisfactory designs have been developed for baggage and postal cars, as well as for suburban and regular passenger service, and within the past year also for Pullman sleepers. It is yet too early to predict the outcome, but it seems to the writer that in the future development of the designs for steel passenger equipment cars there may be a happy medium arrived at, and generally adopted, where the underframes and the superstructure framing will be of metal, but a reasonable use be made of wood or some fireproof substitute, other than metal, which will permit of a decorative treatment that is more pleasing to the eye than is the case where thin metal is used, and which will also have all of the reasonable and necessary elements of safety for those who entrust their lives in such cars.

"In the early days of steel cars the matter of repairs was looked upon with many misgivings by the average master car builder and car repair foreman. Experience in handling these cars in large numbers has shown that there was no cause for any uneasiness on this score. In the repairs of steel cars it is not necessary to employ specially trained labor, and very few extra tools or facilities are absolutely necessary, though, of course, a few especially adapted tools and appliances will greatly facilitate the work. On roads having large numbers of steel cars in service it has been found that not more than one-half of one per cent of this equipment need be out of service at any one time, needing repairs, while in the case of wooden cars from 2 to 4 per cent is not unusual."

WROUGHT IRON VS. SOFT STEEL PIPES.

It is this time of the year when the railway shop men are interested in the proper ventilation and heating of buildings. Particularly is this so in the roundhouse. Since modern shops are now being heated by steam or hot air, instead of the old stove process, the material as well as the engineering problem enters into the plans of the railways when heating and ventilating are considered. The relative merits of different materials in the products used are worthy of consideration. At a recent meeting of the American Society of Heating and Ventilating Engineers, T. N. Thomson, of the International Correspondence School, at Scranton, Pa., presented an exhaustive paper on the subject of "Relative Corrosion of Wrought Iron and Soft Steel Pipes," which affords an excellent study and some valuable information for those contemplating or having ventilation and heating plants in shop buildings. It having been claimed that wrought-iron pipes possessed more durable qualities than steel pipes, and when this matter was presented to Mr. Thomson he made a practical investigation, that is, some experiments. Relative to his investigation and results, we publish from Mr. Thomson's paper the following:

I had not gone far when we found that a peculiar condition of affairs exhibited itself, as follows:

1. A large proportion of the members of the heating trade denounced steel pipe, because, as they said, "It splits, breaks the teeth of the dies and rusts out too quick." Contractors who would acknowledge that they carried steel pipe in stock a few years ago could scarcely be found; they invariably all supposed they carried only wrought-iron pipe.

2. Engineers and architects very freely specified that "wrought-iron pipe (not steel pipe) must be used, etc., their impression being that the increased cost of wrought-iron pipe over steel pipe was more than compensated for in the greater period of usefulness of the wrought-iron pipe over the steel pipe.

3. Instructors in trade schools, professors in colleges, and even the writers of text-books were known to emphasize the supposed fact that steel pipe was not as durable as wrought-iron pipe, and that the latter should be used in preference to the former, particularly for underground work.

4. On the other hand, statistics showed that the makers of steel pipe furnished about 80 per cent of all the welded pipe then used in America. I also found that not only had the makers of steel pipe spent millions of dollars in the development of vast plants, but that they had also made a large number of experiments and tests to determine the relative durability of wrought iron and steel pipes, and that their findings were invariably to the effect that the life of these two materials is about the same when they are subject to equal conditions.

5. Wrought-iron pipe and steel pipe resemble each other so closely that many engineers, contractors, architects, and even steamfitters themselves, cannot distinguish a difference. I know this to be a fact, for I have tried a number of high-class representatives of these several vocations, and they almost all acknowledged that they could not determine the difference unless they were first to cut and thread the pipes; then those pipes which appear most difficult to thread they would christen steel pipes, while those which appear more easy to thread they would call wrought-iron pipes. But this process of determining a difference is not reliable, for it is a fact that a man working with sharp and properly designed dies can thread steel pipe almost as easily as he can thread wrought-iron pipe. This was demonstrated by a series of tests I made for the International Correspondence Schools.

A study of the samples received from the trade would lead me to assume that (1) both wrought iron and steel pipes which convey steam or hot water will corrode very rapidly when buried underground in wet or damp soil or ashes, the corrosion being principally external; (2) both wrought iron and steel pipes which convey hot water become rapidly corroded if the air and other gases naturally solvent in the water are not permitted to escape from the water previous to its passage through the pipes, as in feed-water heater connections and hot-water circulation pipes for plumbing purposes, this corrosion being principally internal if the pipes are not buried underground. (3) That the life of either wrought iron or steel pipes subject to both of the aforesaid conditions will be much shorter than if the pipes are subject to only one of them, because the metal will thus become rapidly corroded at both the internal and external surfaces. (I received no samples which show this, neither have I made tests to prove it, but it seems rational to form this opinion at present.) (4) It is not a fact that the destruction of wrought-iron pipes is in the form of a uniform corrosion, while the destruction of steel pipes is in the form of pitting; they appear to be on an average nearly alike, with the difference, if any, in favor of steel.

SUMMARY.

Assuming that corrosion had been continued at the rate which existed during the period of the test, then the different samples would have become corroded through at the end of the number of days given in the accompanying table:

No.	Plain Pipe.	Days.
10	Steel pipe	850.4
5	Wrought-iron pipe	780.5
6	Steel pipe	780.5
2	Steel pipe	759.7
9	Wrought-iron pipe	759.7
1	Wrought-iron pipe	686.5

No	Galvanized Pipe.	Days.
8	Steel pipe	1,162.9
3	Wrought-iron pipe	1,162.9
7	Wrought-iron pipe	770.0
4	Steel pipe	619.3

The average life of the plain steel pipe samples is 796.9 days, while the average life of the wrought-iron samples is 712.2 days, making a difference of 54.7 days in favor of steel. Therefore a rational deduction to draw from the preceding facts is that plain steel pipe is more durable than plain wrought-iron pipe when used to convey hot water and subject only to internal corrosion.

NEW EQUIPMENT FOR TEXAS ROADS.

The Railroad Commission of Texas has delegated to itself the job of designating what equipment the roads of the state need, and has signed equipment orders for the roads. Within the last few weeks a large number of orders have gone forth from the Austin headquarters, among which the following is a sample:

Gulf, Colorado & Santa Fe, 1908, 50 locomotives, 20 passenger cars and 3,000 freight cars; 1909, 30 locomotives, 16 passenger cars and 2,000 freight cars; 1910, 16 locomotives, 8 passenger cars and 1,750 freight cars.

International & Great Northern, 1908, 25 locomotives, 6 passenger cars and 1,200 freight cars, including 150 stock cars and 100 coal cars; 1909, 25 locomotives, 6 passenger cars and 1,200 freight cars, including 150 stock cars and 100 coal cars; 1910, 10 locomotives, 800 freight cars, including 100 stock cars.

Houston, East & West Texas, 1908, 8 locomotives, 3 passenger cars and 300 freight cars; 1909, 4 locomotives, 12 passenger cars and 200 freight cars; 1910, 4 locomotives and 100 freight cars. Trinity Valley Southern, 1908, 1 locomotive, 1 passenger car and 20 freight cars; 1909, 1 locomotive and 10 freight cars.

Missouri, Kansas & Texas of Texas, 1908, 80 locomotives, 30 passenger cars and 2,500 freight cars, including 200 stock cars and 200 coal cars; 1909, 40 locomotives, 20 passenger cars and 2,000 freight cars, including 200 stock cars and 200 coal cars; 1910, 25 locomotives, 10 passenger cars and 900 freight cars, including 100 stock cars and 100 coal cars.

The Galveston, Harrisburg & San Antonio must purchase 5,000 freight cars in the next three years; the Missouri, Kansas & Texas 5,500, the Santa Fe 6,750 and the International & Great Northern 3,200, with large numbers of locomotives and passenger cars. The orders all provide that this shall be exclusive of cars already under lease, and the cars already in use must be replaced as they are discontinued.

Houston & Texas Central, 1908, 20 locomotives, 600 freight cars; 1909, 16 locomotives and 100 freight cars; 1910, 8 locomotives and 200 freight cars. Houston & Brazos Valley, 1908, 10 freight cars; 1909, 20 freight cars. Hearne & Brazos Valley, 1908, 1 locomotive and 40 freight cars; 1909, 20 freight cars. Timpson & Northwestern, 1908, 1 locomotive, 1 passenger car and 30 freight cars; 1909, 10 freight cars.

Orange & Northwestern Railway Company, 1908, 2 locomotives and 100 freight cars; 1909, 1 locomotive and 80 freight cars. Texas, Arkansas & Louisiana Railway Company, 1908, 1 locomotive, 1 passenger car and 20 freight cars; 1909, 10 freight cars. S. F. & Texas Railway Company, 1908, 10 locomotives, 6 passenger cars and 300 freight cars; 1909, 8 locomotives, 2 passenger cars and 200 freight cars; 1910, 150 freight cars.

Texarkana & Fort Smith Railway Company, 1908, 10 locomotives, 6 passenger cars and 300 freight cars; 1909, 6 locomotives, 3 passenger cars and 100 freight cars; 1910, 60 freight cars. The Wichita Valley Lines, including the Abilene & Northern, the Wichita Falls & Oklahoma and the Wichita Valley, 1908, 4 locomotives and 300 freight cars, including 50 stock cars; 1909, 3 locomotives and 150 freight cars, including 25 stock cars; 1910, 100 freight cars, including 25 stock cars.

Galveston, Harrisburg & San Antonio, 1908, 4 passenger cars and 2,000 freight cars; 1909, 2 passenger cars and 2,000 freight cars, 1910, 1,000 freight cars. Galveston, Houston & Henderson, 1908, 100 freight cars; 1909, 100 freight cars; Gulf & Interstate Railway Company, 1908, 2 locomotives, 2 passenger cars and 100 freight cars; 1909, 1 locomotive and 100 freight cars; 1910, 30 freight cars. Southern Kansas Railway Company of Texas, 1908, 10 locomotives, 6 passenger cars and 300 freight cars, including 60 stock cars; 1909, 8 locomotives, 4 passenger cars and 200 freight cars, including 20 stock cars; 1910, 100 freight cars, including 20 stock cars. Texas Mexican Railway Company, 1908, 6 locomotives, 4 passenger cars and 300 freight cars, including 50 stock cars; 1909, 6 locomotives, 2 passenger cars and 200 freight cars, including 30 stock cars; 1910, 100 freight cars.

COST OF RAILWAY TIES.

When one becomes familiar with the figures of expenditures for railway ties each year, he can readily understand why roads are now experimenting with metallic and cement ties. According to the government bulletin on this subject the roads invested in ties in 1906, $48,819,124, an average of 47 cents per tie. Of this amount the steam roads invested $41,220,532 in 93,177,625 ties in 1906. During 1905, the investments amounted to $36,585,116 for 77,981,227 ties. The woods used for ties are: Oaks, Southern pines, Douglas fir, cedar, chestnut, cypress, western pine, tamarack, redwood, lodgepole pine and white pine. Demand, supply and prices are inducing the railroads to take greater interest in methods for preserving the wood.

"Nearly one-half of this excess," says the government report, "was oak. The purchases of cedar ties showed a decrease of about one-half million, due possibly to the sharp demand for cedar poles, which operated against the production of ties. Douglas fir ties nearly doubled in quantity, and both cypress and hemlock increased by a large percentage, but tamarack purchases fell off more than one-fifth and chestnut about 1.5 per cent. The question of tie preservation is becoming more and more important as the demand for tie material increases and the traffic requirements become more exacting."

The man who can produce a good, practical metallic tie at a reasonable price will find a ready market.

LIMITED TRAINS WITH LIMITED SPEED.

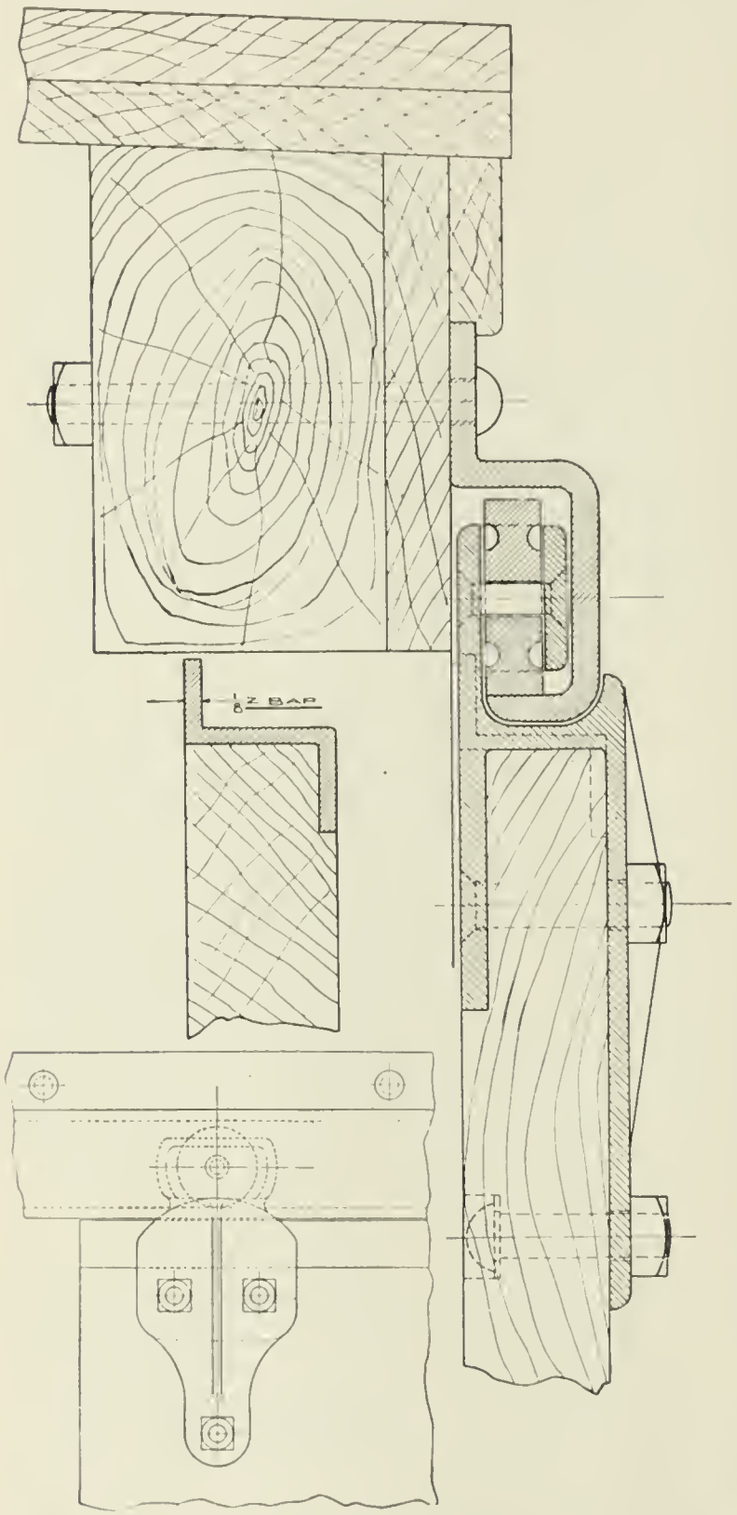
Should any traveler in this country experience a journey that he would call slow train service, let him read the following report of U. S. Consul General Charles Denby from Shanghai, and feel grateful:

"There are three through trains on the Trans-Siberian Railway between Vladivostok and Moscow, leaving Vladivostok on Sunday, Tuesday and Thursday at 7 o'clock p. m. and arriving at Moscow eleven days, eleven hours and forty-three minutes later. The trains of Sunday and Thursday are those of the Russian Railway Administration. The Tuesday trains are run by the International Sleeping Car Company, and it is by the latter that most foreign travelers make the journey. From Moscow to Vladivostok the trains leave Sunday, Wednesday and Thursday at 11:45 p. m. and arrive at Vladivostok eleven days, four hours and fifty-nine minutes thereafter, the composition of the trains being as above, the Wednesday train being that of the International Company. Connection is made at Vladivostok by steamers to Shanghai and to Tsuruga, Japan, leaving for Tsuruga from Vladivostok every Wednesday at 2 p. m. and leaving for Shanghai every Saturday at 4 p. m. The trains are, in general, comfortable and sufficiently well kept. The food is quite sufficient. The speed is very slow, however, and the stops at stations long and tedious.

Walker Fitch, a grain man of note, and a premier in the manly art of "Toastmaster," was formerly in railway service. His resignation came at a very early age because of differences with the chief engineer relative to more progressive rates of compensation. Nevertheless, no feeling of antagonism exists in his generous heart toward railways.

BUNDY CAR DOOR HANGER.

An improvement in freight car door hangers has been effected in the device shown in the accompanying illustration. The track and cap are rolled in one piece which forms a complete protection for the rollers, which are always in the dry. It is impossible for the rollers



to get off the track or for the door to stick, as the rollers run on the upper side of the channel when lifted from the track.

A Z-bar on the top of the door prevents warping and renders the door weather-proof, as it prevents rain, snow or sleet from driving in at the top.

The hanger is simple in construction, efficient and practical, and should meet with ready sale. It is the invention of C. L. Bundy, superintendent of coach department of the Hicks Locomotive and Car Works, and is being placed on the market by F. L. Holmes, 277 Dearborn street, Chicago.

FOREIGN FIELDS FOR AMERICAN MACHINERY.

The Bureau of Manufactures at Washington, D. C., furnishes the information:

Stang, Wilde & Co., Tientsin, China, desire to correspond with American manufacturers and exporters regarding sales of machinery, hardware, lamps, sugar, cotton goods, etc.

Wallach Brothers, Royal London House, Finsbury Square, London, E. C., England, wants names of American manufacturers of magnesia sectional covering for boilers, steam engines, etc.

George Baker & Son, Constantinople, Turkey, are interested in gas pipes and fittings, files, tool steel, cast-iron stoves, hand pumps, etc., and would like to correspond with American manufacturers of such goods.

According to the Review of the River Platte, Buenos Aires, Argentine Republic, the La Plata Senate has approved in general the bill granting a concession to Messrs. Otto Franke & Co. for an electric railway between La Plata and Buenos Aires.

Edward G. Herbert, Rosamond street, East, Manchester, England, writes that he desires to secure the agency for clamps, vises, adjustable packings, and other labor-saving appliances for foundries and shops manufactured in the United States.

The Brazilian "Diario Oficial" of December 18, 1907, publishes the text of a decree authorizing a company that has been formed in Brussels, the Societe Internationale de Voies Ferrees et de Travaux Publics, to construct and exploit railways in Brazil.

An American consul in the East Indies reports that a firm in that locality is in a position to do business in electrical supplies, and would like to correspond with manufacturers of electroliers, electric fans, etc. The current used is alternating, 110 volts and 50 periods

A New York business man advises the Bureau of Manufactures that he is contemplating a business trip to various countries in South America and would be glad to represent a limited number of noncompeting manufacturing firms which might be interested in introducing their products in those markets. The party in question furnishes references.

The Boletin Oficial of Argentine Republic, in its issue of December 18th, contains a notice by the Argentine Ministry of Public Works calling for tenders for the supply of a dredger. Particulars and specifications can be obtained at the Department of Hydraulic Works, Machinery and Materials Section, Government House, Buenos Aires. Tenders must be submitted by April 25th

The Bureau of Manufactures is in receipt of a letter from a firm of merchants in Africa, stating that it covers the whole of East and Central Africa, in which there is a large and increasing opening for trade, affording an opportunity for the sale of American goods which are more suitable in many lines than those of other countries. The firm in question is interested in supplies for the building trades, agriculture, mining and transport, etc.

The Diario Oficial of Uruguay, in the issue of December 7th, published the text of a decree authorizing the Minister of Public Works to acquire, either by tender or directly, various materials for port works at La Paloma, comprising a floating crane, electric movable cranes, steam cranes, transporting carriages, dynamos, crushers, tugs, "tip" and other barges, electric installation (boilers, engines, dynamo, etc.). For the acquisition of these materials and for the construction of moles (loading stages and piers), the expenditure of a sum not exceeding $230,000 has been authorized.

A French merchant residing in the most industrial section of France desires to enter into correspondence with manufacturers of industrial articles or other products, or with exporters of American goods, in order to exploit the surrounding territory for the sale of such goods as tools and machinery for mines, carpentry work, manufactures, construction work, etc. The merchant in question states that he has extensive business relations, and being in proximity to the industrial centers and coal fields of France and Belgium should be able to find a ready market in extending the sale of such products over a very wide area. Correspondence should be in the French language.

Bids will be received until March 12, 1908, by the Isthmian Canal Commission, Washington, D. C. for the supply of Portland cement.

Paul Ruckert, Zabel Stasse 11, Gera, Reuss, Germany, desires to enter into correspondence with American manufacturers of fine mechanical tools, with a view to dealing in the same.

Consul-General Jay White of Bogota, reports that there are no dealers in electrical machinery or appliances in that city, purchases being made in the United States or Europe by the interested parties or from representatives of foreign houses in Colombia. The electric current in Bogota is alternating, and the voltage is 150.

The congress of Chile has passed a bill authorizing the president to make contracts for a railway running north and south through Chile, the immediate expenditure not to exceed $37,500,000. It is intended eventually to extend the road to the northern and southern frontiers, which will give it a total main line mileage of 2,600.

Consul-General Julius G. Lay of Cape Town, South Africa, submits a copy of the invitation for proposals, issued by the City Council of Cape Town, for the construction and working of a railway up Table Mountain, and the erection and managing of a suitable hotel at the terminus of the railway. Further details may be had of the Bureau of Manufactures.

Consul R. E. Holaday, of Santiago de Cuba, Cuba, reports that the Cuban Government has appropriated $225,000 for building a new custom-house and constructing a new wharf at Santiago de Cuba. The building is to be of concrete and structural steel, and bids will be received until February 17th, at the office of the Department of Public Works, Santiago de Cuba.

An American consul in Europe forwards a list of specifications for the construction of a new electric railway, work upon which it is expected will commence during the coming summer. The equipping of this railway will offer an opportunity to American manufacturers to supply steel rails, iron sleepers, double truck motor cars, tugs, steam turbo-dynamos, and other necessary items.

Charles Michel & Co., 82 Rue de la Folie-Mericourt Paris, France, writes that it is seeking agencies with exclusive control for salable articles in mechanical equipment of all kinds. The firm has a warehouse well situated on the Avenue de la Republique, the most active manufacturing quarter of Paris and the one most frequented by manufacturing and commercial buyers, where it has excellent opportunities for displaying its goods.

Consul-General W. H. Bradley, of Montreal, Canada, reports that the Transcontinental Railway Commissioners will receive tenders up to noon Tuesday, March 10th, for six additional sections of the line—four sections covering 189 miles are in New Brunswick, and two sections for 175 miles are in Ontario. The latter is specified as follows: District "D" from a point about eight miles west of the Abitibi River, crossing the Province of Ontario westerly, for a distance of about 100 miles, and District "E" from a point of about nineteen and a half miles west of the crossing of Mud River, near Lake Nipigon, easterly, for a distance of about seventy-five miles. The depots required for the New Brunswick sections are two of $75,000 each and two of $100,000. The first of the Ontario sections calls for a depot of $150,000 and the second $100,000. Tenders must be sent to the Transcontinental Railway Commissioners at Ottawa, Hon. F. S. M. Parent, chairman, who have charge for the Government of building what will be the eastern end of the Grand Trunk Pacific, extending from Winnipeg to Moncton.

THE FOREMAN'S FILOSOFY.

If you are seeking revenge, always make it a point not to find it; you will be the winner if you miss it.

Always keep on friendly terms with Work, then you will have no trouble getting the friendship of Success.

No one deserves success more than those who wish and help to make others successful and happy.

Contentment often leads to dissatisfaction and frequently dwarfs ambition, try to do just a little better each time.

The man who anticipates doing less today than he did yesterday has his ambition on wrong side out.

Sincerity of purpose does not always make the deed right; mistakes often result from honest efforts.

CARS AND LOCOMOTIVES.

The government of Chile is in the market for 120 passenger coaches.

The Erie will soon order 3 electric cars for its Elmira division.

The Carnegie Steel Co. is figuring on a number of cars of 200 tons capacity.

The Idaho & Washington Northern has planned to order additional passenger equipment.

The Tonopah & Tidewater has been asking for prices on 15 narrow gauge flat cars of 40,000 pounds capacity.

The New York, New Haven & Hartford has contracted for 6 electric locomotives from the Westinghouse Electric & Mfg. Co.

The Grand Trunk Pacific has placed orders with firms in Canada for 2,700 standard freight cars and 200 convertible ballast cars.

The Tehauntepec National of Mexico is receiving a number of locomotives from the Baldwin Works, also a large number of freight cars.

The Intercolonial has placed orders for 100 all-steel coal cars from the Hart-Otis Car Co., L't'd, the cars to have a capacity of 100,000 pounds.

The S. Flory Mfg. Co., of Bangor, Pa., has turned out 12 locomotives for roads in Japan, and recently shipped a number to the Panama Canal for service.

MECHANICAL NOTES.

A fire damaged the shops of the Delaware & Hudson at Albany, N. Y., on January 26th.

The B & O shops at Baltimore were damaged by fire recently, to the extent of about $40,000.

The St. Louis Refrigerator Car Co. of St. Louis has placed orders for a large list of shop tools, cranes, etc.

The South & Western will erect shops at Carnegie, Tenn., to replace those destroyed by fire on February 2d.

The following lines are said to be in the market for rails: Manila Railway, the Pittsburg & Lake Erie and the Baltimore & Ohio.

The Trinity & Brazos Valley has commenced construction of a roundhouse and shop building at Tomball, Tex. The building is to be of brick.

The Grand Trunk Pacific is trying to sell about $5,000,000 worth of bonds, the proceeds of which are to be used for additional rolling stock.

The New York Central has plans prepared for an erecting shop at W. Albany, N. Y. The building will be 120 x 70 feet, and will cost about $200,000.

It has been suggested that the roofs of passenger cars should be made of glass instead of metal or wood, thus assuring stronger light in the center of the coaches.

The Missouri, Oklahoma & Gulf, operating 100 miles between Waggoner and Dustin, Okla., is experimenting with electric power with the view of replacing steam with electricity.

The Tampa Northern is building at Palmetto, Fla., a 50,000 gallon steel water tank, roundhouse and a 70-foot turntable. The company's shops will be built at that point also.

It has been predicted that owing to the fact that railways have cut down on their orders for supplies the last few months there will be unusually heavy orders placed within the next six months.

The Dominion Railway Commission of Canada has instructed that railways of that country must discontinue using acetylene gas on passenger equipment, and that Pintsch gas can replace it.

Consul Alfred A. Winslow of Valparaiso reports that it has been announced that the Chilean government has commissioned an American electrical engineer to study the feasibility of changing the first and second sections of the state railways for the use of electrical instead of steam power.

E. T. Jeffery, president of the D. & R. G., is quoted as saying: "We have discussed the question of electricity for the Western Pacific from time to time for a year and a half or more, but have not yet reached any definite conclusion. The probabilities are that when we open the railroad for operation we shall have steam power, but we shall continue our studies of the uses and merits of electric power with a view to its adoption in the future." Speaking of the work already done on the road Mr. Jeffery said that about 300 miles, or nearly one-third of the road, was tracked and ballasted.

The Southern Railway has contracted for enlarging its roundhouse at Spencer, N. C. The company is also completing a large shop building, 150 x 750 feet, at Coster (Knoxville), Tenn. This shop is to be operated by electricity, and the old shop building is to be used as a boiler shop.

H. F. Hodges, general purchasing officer of the Isthmian Canal Commission, will receive bids until March 2d for furnishing two centrifugal pumps, boiler pumps, one punching and shearing machine, right-angle drive, repair parts for flat and dump cars, a large number of jacks of different types, iron, steel, brass and copper tubing, pipe fittings, rubber valves, 100 dozen lanterns, globes, lenses, etc. Further information relative to Circular No. 423 may be obtained from the Washington office, or from the offices of the assistant purchasing agents, 24 State street, New York City; Custom House, New Orleans, La.; 1086 North Point street, San Francisco, Cal., and 410 Chamber of Commerce building, Tacoma, Wash.

AMONG THE SUPPLY FIRMS.

The Philadelphia Turntable Co of Philadelphia reports good business in the western field

The Railway List Co. of New York has moved its office to 10 Wall street from 132 Nassau street.

The Standard Tool Co. of Cleveland, Ohio, has increased its capital stock from $750,000 to $1,000,000.

The Santa Fe has contracted for a large number of ties from the Hawaiian Mahogany Lumber Co. of Honolulu.

The W. K. Kenly Co. of Chicago has entered the field of railway equipments by adding that department to its business of track materials.

The Fort Pitt Spring & Mfg. Co. of Pittsburg, has issued a neat illustrated catalogue calling attention to their car and locomotive truck springs.

The Heath & Milligan Mfg Co. of Chicago was placed in the hands of a receiver on February 8th. E. C Day, W. C. Neblack and W. F. Zibell were appointed receivers.

The Bettendorf Axle Co., at Davenport, Iowa, has completed a machine and blacksmith shop. The building is constructed of brick and steel, and is 380 feet long.

The railway supply and equipment market is taking on a better tone. The railway store supplies are getting low, hence new orders are being figured on by the railway companies.

Fred Pabst of Milwaukee is president and Robert Nunnemacher is vice-president of the Milwaukee Car Mfg. Co. of Milwaukee. The company has a plant for the manufacture of cars.

The Detroit Seamless Steel Tubes Co., of Detroit, Mich., has issued a neat booklet asking if "you know of any argument in favor of a weld." The reply to the inquiry is found in this booklet.

The National Steel Castings Co. has been organized with a capital of $400,000; offices at Chicago and Guthrie Okla. The interested parties are Wm. C. Payne, Roy E. Bird and H. W Pentecost.

The general sales office of the Hicks Car and Locomotive Works have moved their sales office to 410 Fisher building, Chicago, and the main office has been removed to the works at Chicago Heights, Ill

The Westinghouse Electric & Mfg. Co. of Pittsburg has issued circular No 1104, descriptive of the Westinghouse portable and precision meters, covering about 54 pages, and attractively illustrated.

At a meeting of the directors of the Conley Frog & Switch Co , of Memphis, Tenn., the following officers were chosen: J. E. Conley, president; B. L. Mallory, vice-president, and F. J. Callahan, secretary-treasurer.

C A. Ralston and A. T. Le Baron have formed a partnership to do business under the name of Ralston & Le Baron, office at 702 Fisher building, Chicago. They deal in contractors' equipment, car locomotives, etc.

The Standard Steel Works of Philadelphia has issued a handsomely illustrated catalogue of their popular steel springs. Their book on "Steel Tires, Causes of Defects and Failures" is also a new production worthy of study.

G. D. Kershaw has been made general western agent for the Anderson-Lacy Electric Headlight Co of Houston, Tex., with offices at 800 Fisher building, Chicago. This company has been introducing its headlights on the Harriman lines.

The American Spiral Pipe Works of Chicago have issued a neat catalogue, giving some interesting information on spiral riveted pipes, forged steel pipe flanges and steam supplies. The illustrations are worthy of study as they show the application of a superior pipe product.

RAILROADS HAVE PROCESS FOR TREATING SMALL TIMBERS.

BY FORESTRY SERVICE, WASHINGTON, D. C.

There is probably no class of wood-users who demand a greater variety of grades of rough and finished lumber than the railroads. The supply of the more durable kinds of wood has decreased to such an extent, with a corresponding increase in value, that short-lived species have, of necessity, been substituted, especially for cross-ties. In many cases railroads have constructed plants for treating timber by the pressure process. At first these treatments were confined to the less durable varieties of wood, but it has now been found profitable to preserve the more durable species and higher grades of lumber which are subject to decay, such as bridge stringers, car material and rough lumber used in the construction of buildings.

Little attention has been given to the preservation of fence posts and other small timber used along the right of way, though these require millions of feet annually for renewals. Under most conditions it would not be practicable to treat these timbers at a large pressure plant, and such work would seriously interfere with the operation of treating ties and large timbers.

The Forest Service has recently developed a method which is particularly well adapted for the treatment of fence posts and small timbers, but can also be applied to larger stuff. This is known as the open-tank method. There are many advantages in this process and several factors make it of especial value to railroads. The entire outfit can be placed on two cars at very small expense. A flat car would be necessary to hold the tanks and heating apparatus, and a box car for bunk room and storage space. The capacity of the plant would depend somewhat upon the class of material to be treated. As a rule, but four men would be required to run the plant, the operation of which is very simple.

It is believed that railroads will find this type of plant well adapted for general use, either independent of or in conjunction with the pressure plants. As a result, the annual charge for maintenance could be reduced at a moderate expense and the available supply of timber materially prolonged.

BOILER CONSTRUCTION.

All boilermakers who wish to get the best work on locomotive boiler construction can secure through the RAILWAY JOURNAL a copy of Frank B. Kleinhans' new book on "Boiler Construction," a book of over 430 pages, handsomely illustrated and cloth-bound. The book contains 334 clear cuts and five pages of large plates, illustrating different forms of locomotive boilers. There are 75 pages devoted to laying out and about 50 pages devoted to tables, rules and other valuable data. We have arranged to secure this book for our readers at cost—$3.00—which will be sent postage paid. It is the most complete and up-to-date work of its kind we have been able to secure for our readers, and we think it is about what every aspiring boilermaker needs. A boilermaker of forty years' experience writes: "I would not take $10 for my copy if I could not replace it." We also take orders for the

WALSCHAERT LOCOMOTIVE VALVE GEAR.

This valuable book of 150 pages finely illustrated, should be in the hands of every railway engineer, fireman and mechanic as well as foreman. It is devoted exclusively to the above system of valve motion. The book contains information that is put forth so simple that anyone can easily understand it. Its illustrations and diagrams alone are worth more than the price, $1.50.

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RECEIVERS AND RAILWAY FINANCING.

In a recent issue of the Collier's Weekly appeared an article touching on the causes of railway receivership and it cited the recent instances of the Seaboard Air Line and the Chicago Great Western. Assuming that the above paper is familiar with the facts the article affords some interesting information, particularly the following two paragraphs:

The Seaboard Air Line had shared with the Metropolitan Street Railway of New York the honor and profit of the financial activity of Thomas F. Ryan. Mr. Ryan had wrested the control from the interests represented by John Skelton Williams, the former president of the road, and Mr. Williams had been carrying on a literary campaign against him for some time, asserting that the property had been "shamefully mismanaged" with intent to freeze out the minority stockholders. The system is heavily overcapitalized, and the worst of it is that over half of its outstanding securities are in the form of bonds and notes, whose interest has to be met in bad times as well as in good. Even in the flush times that ended last year its fixed charges absorbed 78 per cent of its total net income, and it took only a breath of adversity to convert its little surplus into a deficit.

The case of the Chicago Great Western was unique. This system, largely owned by English stockholders, was financed on English lines. Its nominal capitalization was enormous, amounting to $105,400 per mile, or over three times the rate found sufficient by such great neighboring systems as the Northwestern and the St. Paul. But this was almost all represented by stock of various kinds—there was no bonded debt. Most of this stock never paid any dividends and brought little more than the price of wall-paper per square yard in the market. The actual capitalization on the day of the announcement of the receivership, as measured by market judgment, was about $15,000,000 instead of over $100,000,000, or a trifle over $10,000 per mile. As long as the company's securities were limited to pieces of paper representing the ownership of the property it could laugh at panics. But in an evil moment it borrowed some real money on short-term notes, of which $3,342,000 were to fall due in 1908. That was its fatal weakness. It could carry a hundred millions of stock without blinking, and could have carried a thousand millions just as easily, but the effort to raise three millions in cash broke its back.

FIELD FOR AMERICAN CARS.

According to reports coming from India there is a splendid field in that country for American built rolling stock, and no doubt other railway supplies. W. H. Michael, consul general at Calcutta, writes for the Consular Reports, that as a result of recent murders, robberies and other outrages on trains in India, the Eastern Bengal State Railway has ordered electrical alarm bells to be installed in the cars of their line, so that passengers may communicate with the guards on the train. It would appear that the only effectual and practical remedy is the substitution of cars built on the American plan, with open ends and vestibule connection, for the side-door arrangement used in India. The English passenger cars, or carriages, as they are called, which open at the side, are not suitable for India.

As a class there are no "predatory rich." We have rich people who are dishonest, and rich people who are so engrossed in accumulation they become thoughtless of the welfare of others. The former ought to be properly punished and the latter class ought to be often reminded of their public duty. We have many rich who are estimable in every way. In private life they are unassailable and in public ways they are the forefront of every possible benefit. They ought to be separated in the minds of critics and let alone. If we were without any rich we certainly would have a monopoly of poverty.

THE MISTAKES OF A DAY.

Chancellor Day, of Syracuse, New York, is a frequent counselor of the people in the public press. In his theorizing he expresses many truths, and yet because he is by his profession not in touch with issues as they appear to the majority, he has not been the harmonizer nor reformer it was possible to become. Unless a really great educator broadens in his work with time, he must soon be in the contrary position, of growing more and more impressed with personal ideas, and farther from any valuable knowledge of true working conditions. In his appeals to the people he is influenced, we think, too much by dislike of a man rather than a principle, and that man the ruler in power, and at the present time a popular idol also.

The eminent Chancellor's attacks seem, therefore, to be his own antagonism to an individual, rather than the exploitation of any specific principle of reform he would substitute, in the interest of our common welfare. In our humble opinion, looking upon conditions from a modest station, we regard his comments usually as harmful, and as being likely to incite some weak minded and irresponsible person to commit national atrocity, rather than as putting off mob violence by a riotous number. Vitriolic and learnedly sarcastic assaults upon a ruler are not arguments against laws of unjust effect, and, therefore, they are harmful, and disappoint the purpose intended, namely, reform. Again, law is only effective statute, when public sentiment is behind it, and the true way to overcome unfair and obnoxious laws is to reform the sentiment behind them. The man who sees laws enforced, is not in first analysis their cause, and hence he may be in every way assailed, and no relief follow. It is because in our insignificant mind of the activities of such men as the Chancellor, hurling their satire at a man, with a chip always balanced upon his shoulder, and ready for a contest, that the recent manifesto of the Chief Executive, bore no message of peace. If the youth of our country who are trained in the Syracuse University are at all imbued with the methods of the head of this great school, we can anticipate few statesmen of enough balance to be safe, as coming from there.

This worthy emancipator from a ruinous thraldom is an amateur in politics, or he would cease railing at those in charge of Government, and try to preach effectively, to those who put them in power. If a President is not the right man, induce the people to change him, and if laws are wrong, induce their repeal or their amendment, but never hope for much by personal attacks upon the choice of the majority to represent them. There is only one result of such crude work, and that is to make the people feel insulted. While the effect of an insult lasts, there is no prospect of peace. We have no intention to overlook the claims of Mr Day, as to erudition and great research in educational lines, but we venture a word of reasonable caution from the simple paths of daily life, where we can see better the movements in the walks of industry and thrift, and we solemnly believe, that this eminent citizen of a worthy institution is harming the interests of every great corporation and the railways in particular.

W. B. B.

Do not get dignity and false pride mixed up; you handicap yourself when you do.

TRAFFIC AND FINANCE.

The governor of Mississippi is in favor of a law compelling roads to sell tickets at 2 cents per mile, but not to take effect for several months yet.

According to press reports, the Marietta, Columbus & Cleveland has been absorbed by the Toledo & Ohio Central. The former line is 49 miles long.

The legal department of the State of Dakota has stated that the anti-pass law of that state does not prohibit railroads from paying for advertisements with transportation.

A stock train on the Spokane & Inland Empire electric line made a run from Colfax to Spokane, Wash., 70 miles, in two hours and forty-five minutes, a rate of almost 25 miles per hour.

An order has been issued by the Mexican government that after six months from date all railway employes in that state must speak Spanish—as the latter is the official language in that country.

The Mobile & Ohio has offered to sell in the State of Mississippi mileage books, interchangeable, at the rate of 2 cents per mile and interstate mileage at 2½ cents per mile, as an experiment, dating from April 1, 1908.

Owing to its inability to meet certain financial obligations the Macon & Birmingham was placed in the hands of a receiver on February 3rd. F. M. Edwards of Boston, Mass., was president of the road. S. F. Parrott of Macon was made receiver.

The Frisco-Rock Island lines in Louisiana have been completed from De Quincy and Baton Rouge, La., excepting the bridge across the Atchafalaya River, the completion of which has been delayed by high water. Through service has been opened between De Quincy and Opelousas.

Railroad officials have been advised that the Interstate Commerce Commission disapproves of the practice among railroads of repaying advancements made by shippers for the construction of switch tracks by making a definite allowance on each railroad for freight shipped to or from their manufacturing plants.

On February 1st, the Detroit, Toledo & Ironton was placed in the hands of receivers, George K. Lowell, formerly vice-president and general manager, and B. F. Warren, formerly general counsel. The directors issued a statement saying that the failure of the company to meet obligations is due largely to adverse legislation.

The Corporation Commission of Oklahoma has exempted three roads of that state from the two-cent law, on the grounds that they have made it clear that such a rate is confiscatory. The roads exempted are the Ft. Smith & Western, the Wichita Falls & Northwestern and the Oklahoma Central.

The assistant city ticket agents of Ft. Worth, Tex., have perfected an organization for railway employes holding similar positions, and it is proposed to make it a national association. The objects are to be solely social, fraternal and benevolent. W. Y. Freeman of the Texas & Pacific was made president, and A. B. Stringer of the Cotton Belt was chosen secretary.

J. J. Hill of the Great Northern has been quoted in New York as saying: "I am not so much of an optimist as to predict that railroad earnings this summer will not be below those of last summer. I am sure that they will be. But there are more people in this country today than ever before, and they are people of fair intelligence. What the country needs now is a rest. Let it have rest and let a stop be put to this ghost dancing and everything will work out all right."

Stockholders of the Cincinnati, Hamilton & Dayton Railway Company held a special meeting at Cincinnati on February 7th, and authorized the issue of purchase money notes amounting to $14,286,000, to mature July 1, 1913 and to bear interest at the rate of 4 per cent. The purpose of the note issue is to provide means for retiring the refunding bonds of the road which are now outstanding or which may be issued. This marks the first definite steps toward the reorganization of the C. H. & D. Railway, and the lifting of the receivership.

The Spokesman Review of Spokane, Wash., recently quoted President Elliott of the Northern Pacific as follows: "Not satisfied with the havoc already wrought by extreme and unwise statements, President Roosevelt made another attack on corporations. His recommendation for the Federal control of stock of corporations is alarming. The encroaching power given commissions over railroads has checked building for years to come and the West suffers for this unwise legislation. This talk about watered railroad stock is untrue. There is not a single drop of water in any of the railroad stocks of the country. It would be impossible to replace the railroads for the par value of the railroad stocks of the country today. It is time the people called a halt to this vicious legislation, for it must be checked if future development is to be expected."

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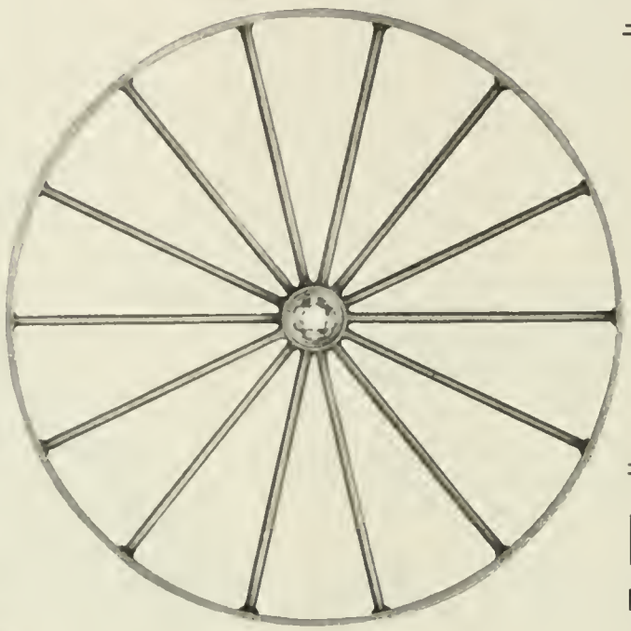

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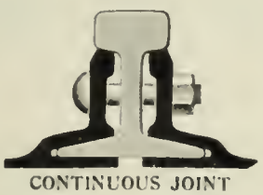
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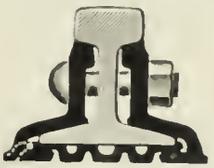
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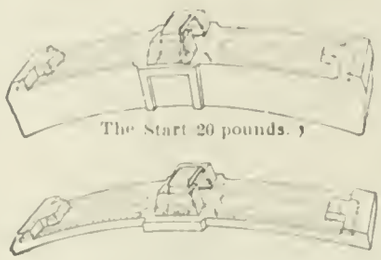

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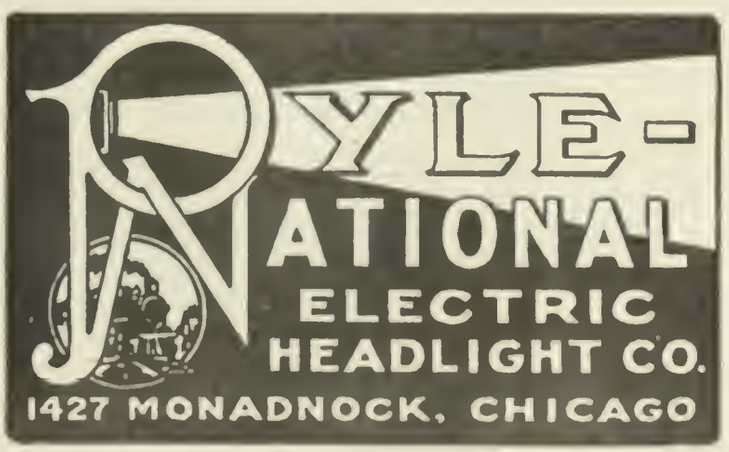

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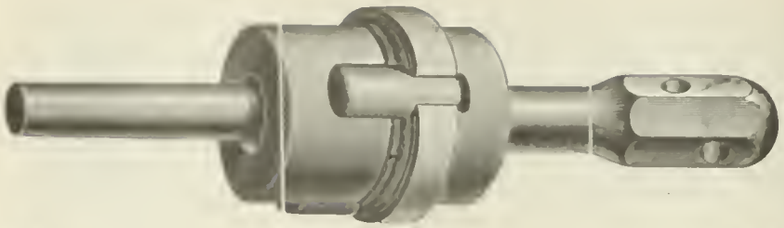

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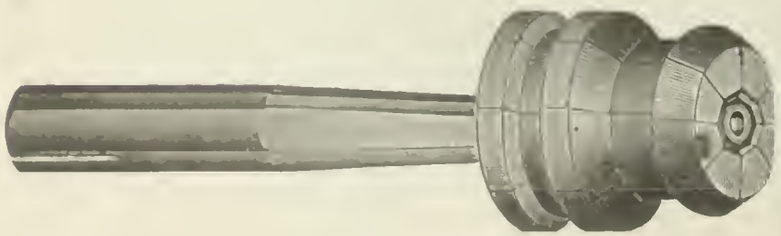

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E. C. COOK - - - - - - Editor
W. B. BARR - - - - - Associate Editor

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CALIFORNIA RATES TO CONCENTRATION STATIONS.

The Interstate Commerce Commission, through Commissioner Lane, has brought up the case of reductions upon intrastate business as it affects interstate traffic. The method of arranging rates covering traffic in California from point of production to concentrating centers is the immediate cause for a ruling upon the legality under state laws, and it is to be contended that interstate traffic has been included. The question is important as it relates to wilful or malicious intent to disregard the Federal statute. In the movement of state business from producing sections to common centers for consolidation at less than a published tariff, if the practice has been common and of established usage, there must have been the theory that in the interest of shipper and carrier of perishable freight, the movement of through shipments was far better because of the loading volume and that inducements were fair to get the result in promptness and economy. It may have naturally resulted that in the many shipments of this sort some through shipments of interstate destination found their way into the handling of a large movement.

It is not easy to understand how, *intentionally*, the roads were taking freight in violation of the Interstate law. If there was a willingness to apply special rates to material moving to and from San Francisco at the time of the great misfortune the philanthropy of such a course condones any possible offense. Humanity to man will not endorse any penalty for such an act at such a crisis. There comes in here again the desirability for Federal regulation of all traffic by National incorporation of transportation companies, perhaps, so that the present confusion as to carriers' obligations may have one set of rules rather than forty-six, with divided standards.

The question of routing interstate business because of intrastate favors received by shippers is not a violation of any Federal law. It may be unfair, morally, but that is not the issue. The number of shippers, given as 108, would seem to indicate a fairly common application of reduced rates, so that while not published, strict secrecy was not possible. It is a reasonable inference that the lower rate basis was well known and not seriously discriminative, or protests would have developed. The law must have been a dead letter to the shipper as well as the carrier when the number taking advantage of rates is considered.

In view of the circumstances, to order a cessation of the use of any rates not published within the state limits, it would seem properly covers that feature. General misunderstanding of the purposes of statutes are not crimes of malicious intent. In the handling of traffic within the purview of Federal laws we believe traffic men everywhere are trying to obey strictly, seeking no chance to ignore nor evade, with many opportunities for unintentional violation upon the part of a large staff, most unusually difficult to guard against.

CAN MR. BRYAN CONSISTENTLY OBJECT TO NATIONAL INCORPORATION?

BY W. B. BARR.

Mr. W. J. Bryan, in the February Reader, writes of "What the People Should Demand of Railroads." Much breadth has come to this thoughtful student of economic questions in the years past, and clearer forms of analysis, and no one can afford to argue against his charge that a form of absolutism was one of the initial errors of railway management. It is true, no doubt, that imperceptibly this idea became so entrenched in the railway manager's mind that any steps toward more public responsibility were resisted without investigation as to their causes, and with too much indifference when known, as to a fair adjustment.

It may have been thought a most interminable tangle would be the sequel to the claims of many states with an equal number of divergent platforms. It is also possible there was a sincerely and deeply rooted belief that railway investment was so nearly private, as to permit very little, if any, supervision as proper, upon the part of

states. Whatever the incentive, the position was so well defined when the Interstate law came into force that railways, without entire reversal of their previous attitude, could not consistently welcome it as a rule to live by. A prominent editor of one of the leading railway journals in this country told me a few months before the law became effective, that I would not see Federal regulation in twenty years. I had taken the position that it was imminent, and behind it an irresistible sentiment. He probably was voicing the opinions of those in high place then, and this fact will explain how almost inevitable it was, that the transportation interests could not accept the conditions imposed, without the most stupendous effort to change them.

This was an error most costly, a policy pursued without any deep reflection, and in disregard of the democratic idea that the majority must be considered a basic principle in this country. Not very long after the law was a part of our Federal statutes the railways were appealing to the courts for protection in labor troubles because of interruptions to interstate commerce. Federal interference in these cases was, in my opinion, right, and in the interest of all the states. These facts are cited to be followed by the admission that the railways have been both unwise and inconsistent. What is, however, true now? The better element in railway affairs has come to the conclusion, that there is the public servant obligation to be most carefully regarded in the conduct of railroads. This element looks upon its carrier duties to the people as demanding the best service it can give, and with the same rates to all for the same service. Men of these ideas do not say that capitalization as exploited is fair, that in all cases the securities issued have been reasonable, nor that past errors should be permitted in future. They say we are doing our best with conditions as they are. Regulation is right and we shall observe the laws. In order to help us let us have uniform laws. Let there be some method whereby interstate railways may operate knowingly and without interruption every few miles, between termini. If the people of all states are interested in the whole country, then let legislation be for the commonwealth and not for and by component parts of it.

Mr. Bryan says:

"The state should regulate local rates and local operation; it should prevent discrimination between places within the state and between its own citizens. * * * It should require the rates to be not only equal between citizens but equitable to all."

It is more and more a stereotyped phrase to say the state should do this. The principle of regulation and the justice of equal conditions being admitted, why should the state do this? There seems no ready answer except to say: The state has always regulated its own affairs as any sovereign should. But the rate question is no longer local or even sectional—it is national, hence state interference only confuses. State regulation of railways today has about the same importance as compared to Federal regulation that state banks have to national banks.

Mr. Bryan's growth must ultimately include the fact that no intrastate roads exist now. Lines built with rails entirely within a state's limits are not intrastate in purpose nor in effect, and have for the greater portion of their business, shipments with either interstate origin or destination.

It is scarcely to be disputed that no railway is now built without making a connection with some other railway, hence its purpose in construction is interstate traffic. Such traffic ought not to be refused uniform treatment by the introduction of state interference. Police powers and those of taxation can properly remain with the states, but the questions of broader scope are the care of the nation. It is not to be feared that the Federal Commission will lose sight more of state requirements than those of individuals, and in the enforcement of equality it will be undisturbed, by the interference of local political ambition.

TWO UNUSUAL RECEIVERSHIPS.

No one familiar with railway financiers, ever doubted that George Gould inherited many of the traits of railway financiering possessed by his wiley father, Jay Gould. While it is generally believed that the younger Gould aimed to conduct railroads more from the successful operation point of view than did the elder Gould, yet he is not unmindful of many of the astute methods of financiering for finances' sake, particularly for quick results.

There was something of a surprise sprung when it was announced a few weeks ago that the International & Great Northern, a Gould line in Texas, had been thrown into the hands of a receiver. This road has 1,160 miles of track wholly within the state of Texas, and most of this mileage traverses the very richest agricultural part of it. Hence it was naturally understood that the road was doing well financially. About the time the present financial flurry came on the Texas railroad commission instructed the management of the I. & G. N. to purchase new equipment and make extensive improvements otherwise, to the extent of about $2,000,000. The New York office of the road did not feel disposed to make such an outlay within the time designated, hence a receiver was appointed to take charge of the property. This action places the new equipment proposition to be settled by the court and the commission. If the mandate of the latter is to be carried out, the court and receiver are the ones to see that financial provisions are made for the expenditures.

On March 5, the United States Court at Baltimore, Md., appointed President B. F. Bush of the Western Maryland, another Gould line, as receiver. The Western Maryland does not have to contend with the rulings of the Texas Commission, but has other troubles of a serious nature, which the officers of the road are willing to be handled by the courts. The situation is best understood by reading the statement, or rather explanation, given by Receiver Bush, a part of which is as follows:

"The general lien and convertible mortgage of the company is in greater degree and the stock vitally interested in the preservation of the coal revenues of the company from the adverse conditions of the commodity clause of the rate bill. The coal properties of this company are a material part of the security for the company's mortgages, and the revenues from its coal business cannot be sacrificed or seriously diminished without materially affecting income applicable to its junior securities.

"The law cannot be generally observed in the extreme construction of which it is susceptible, without either a wholesale marketing of coal lands, impracticable except at appalling loss to proprietary and mortgage interests, or a restriction of production to the fuel requirements of the roads, entailing vast loss of revenue to them and inevitable exactions from the public. I think is must be clear that the law cannot be ignored until it has been declared invalid by the court; that it cannot safely be treated as inapplicable except with the sanction of the court, and that, if valid, the relations of the company to its coal interests cannot be safely and conclusively remolded except with the approval of the court. Under such proceedings it is properly to be assumed that the receiver will apply to the court for instructions as to the course which shall be taken in the protection

of the coal business and revenues of the company as affected by the law above referred to."

It is hardly fair to charge up these two receiverships to financial conditions of the country as both lines may have gone through the same changes had flush times continued as it was early last year.

GOVERNMENT OWNERSHIP IN MEXICO.

For the past few years the federal government of Mexico has been working to perfect a system of government control of railroads which is akin to government ownership. While the government does not own outright all the stock of roads involved, yet the ownership is extensive enough to give the federal authorities control of the properties. As soon as the Mexican National became a standard guage, the government purchased a controling interest in its stock and with it as a nucleus started to form a large combination through a process of merging. The Mexican International and the Interoceanic were next absorbed, all under the name of the National Lines of Mexico. Being satisfied, apparently, with this method of supervising its roads, the government next commenced negotiating for the only large railway system in the republic that was not yet in the government fold—the Mexican Central. Some few months ago announcement was made that an agreement had been reached whereby the Mexican Central is to become a portion of the National Lines, but the details of the deal had not been consummated till early last month, when the report was sent out from New York stating that the transaction was closed.

All these lines excepting the Mexican International had been subsidized by the Mexican government and were considered good paying properties. The change in control, bearing with it a change in operation, has been watched with considerable interest by the commercial and financial world. The people in that country have unbounded faith in the judgment of their government officials, and being unfamiliar with the science of railway operation, they naturally are not much concerned as to the outcome of the new conditions which will naturally arise from political influences. It will be several years yet, perhaps, before there will be any marked difference in the results under the new regime as compared with the former. Mexico is a rich, resourceful country and all railways should prosper there if not hampered with poor management.

WHY BLAME THE ROADS?

In his annual report to the stockholders presented on March 3, President W. H. Truesdale of the Delaware, Lackawanna & Western places considerable stress on the evil effects of politics on finances and railway earnings. Mr. Truesdale spent a large portion of railway life in the West and is familiar with the tactics of the politician in that section and the results his efforts make with the voter. Being a close student of economic conditions and we believe that his assertions are well worth reading, and also believe that every weekly and daily newspaper of this country can render good service by publishing them for the benefit of their readers. An extract from Mr. Truesdale's report is as follows:

The two great political parties of the country, in planning their forthcoming presidential campaigns, make the sins of the railroads and their management and drastic correction of the same their leading issues and herein may be found the real underlying cause of all the general, indiscriminate abuse of the railways and their management and of the paralytic stroke which they and all interests connected with them have suffered. It is plainly the plan and purpose of the politicians of the country to make the great railway interests and the large investments in them the pawns in their game of politics. With great foresight and shrewdness those who have planned and are responsible for this political program have alienated from the railways the chief political influence that they might and should have every reason to expect would use their influence to protect them against a campaign of this kind—their own employes. This has been accomplished by the passage of certain laws governing the hours of service, wages, conditions of employment generally, and others more far-reaching have been promised and are now pending.

The general and sweeping denunciation of managing authorities of all railways, whether so intended or not, has had the effect of weakening authority over their employes and created a spirit of disaffection and disloyalty to the companies, and has lowered the general tone and character of railway service to an extent that is most striking and appalling to those having the responsibilities for the safe conduct of the transportation of the country. No greater blow has been dealt the railway interests of the country, none that will react more quickly or with greater permanency on the public at large, than the legislation that has been enacted, and other than is proposed and pending the effect of which is to take from those in charge of the management of railways the resasonable and proper control of these properties, including especially the army of employes engaged in their service in various capacities . . . The tendency furthermore, to place the control of the railways and their operations, down to the minutest detail, in the hands of public officers, boards of commissions, all of which are subject to political influences to a greater or less degree, is by no means hopeful or reassuring as respects the future value or efficiency of the transportation facilities of the country.

THE CITIZENS' AND RAILROADS' INTERESTS.

If the people wish railroads to make extensive improvements and give first-class service they should show a disposition to encourage expenditures along that line. Since the panic came on in this country and the public has observed the entrenchments made in all lines by the roads it has no doubt come to a serious reflection. We believe that the broader minded class of citizens has awakened to the fact that a mistake was made in the enactment of too much drastic legislation, and if the work was to be done over again considerable less legislation would be the result. In an interview published in an Oklahoma paper from President Winchell, of the Rock Island, is found some food for serious thought for the voter and the legislator, too. Among other things, Mr. Winchell said:

"The great need of Oklahoma is more and better railroads. You haven't near the railroad mileage you need in this state to handle the business to the best advantage of the public. Your farmers should not be compelled to haul their products so far to market. We are in earnest in our desire to rebuild and better equip our lines in this state. Last year we spent $2,000,000 on improvements in Oklahoma and we want to spend $5,000,000 more, but we can't do it on the basis of the proposed reduced rates. The popular impression that the railroads have unlimited money to spend is all wrong. We cannot spend more than we make and what we spend must be in proportion to what we receive. We are not getting any profits on our business in Oklahoma, it is simply a question of how much we can get to put into improvements.

"You haven't reached the 2-cent fare basis in this country, and when we have gathered sufficient data we shall put it before the corporation commission and ask for the restoration of the 3 cent rates. But serious as this is, it is not as serious as the drastic reductions in the freight rates. If our revenues are continually curtailed, it is simply impossible for us to make the improvements which are needed and which the people want, and are entitled to have."

If the average voter could understand what a large percentage of the gross earnings of a road are expended every year in the very community in which they are

earned he would better understand where he is doing an injustice to his home interests when he attacked the interests of the roads. Here is a field for education along this line for the railroads, and it is something for the voter to learn for his own good.

An engineering achievement of unusual importance was realized a few weeks ago when tunnels of the Hudson & Manhattan railroad beneath the Hudson river were opened to the public. The public and official opening took place on February 25 with considerable ceremonies as it was an event of almost national importance, throwing, as it does, the city of New York and Manhattan island in direct rail connections with the mainland of New Jersey. The construction of this subway has been in progress for several years and when first contemplated the task was looked upon with considerable doubt. Regular passenger service between New York City and Hoboken, N. J., has been inaugurated through these double tube tunnels. The success of this enterprising feat is due to Mr. William McAdoo and associates, who promoted it and carried out the plans.

It is reported that the death rate of employes on the railroad in the Naniti Valley, China, is 70 per cent of the total number employed. During the summer rains in that valley work is suspended and employes removed.

THE ILLINOIS TUNNEL COMPANY.

A RAILWAY UNDER THE CITY OF CHICAGO.

Nearly everyone has heard of the Illinois Tunnel Company or Chicago subway, but few people know of its growth and possibilities as a factor in freight traffic. Below the surafce of the city streets there are in operation now some 65 miles of railroad, handling fuel and supplies to many of the largest establishments, and removing the accumulations of various sorts of refuse therefrom. It reaches the stations of nearly all, if not all, the surface railways, and has connection with baggage and mail rooms through proper elevator service for receiving and delivering freight.

In a quiet way this development has been going on until now there is an organization, capable of handling many lines of merchandise between the freight depots and warehouses of surface roads, and in this transfer taking goods for the merchants into the center of the very buildings they occupy, where they can be transferred by elevators from the basements to the numerous departments. Beneath some of Chicago's greatest establishments are a network of rails composing underground yards of sufficient capacity to cover the necessary switching, and providing storage for cars to be held. While the channels of trade above the ground are alive with

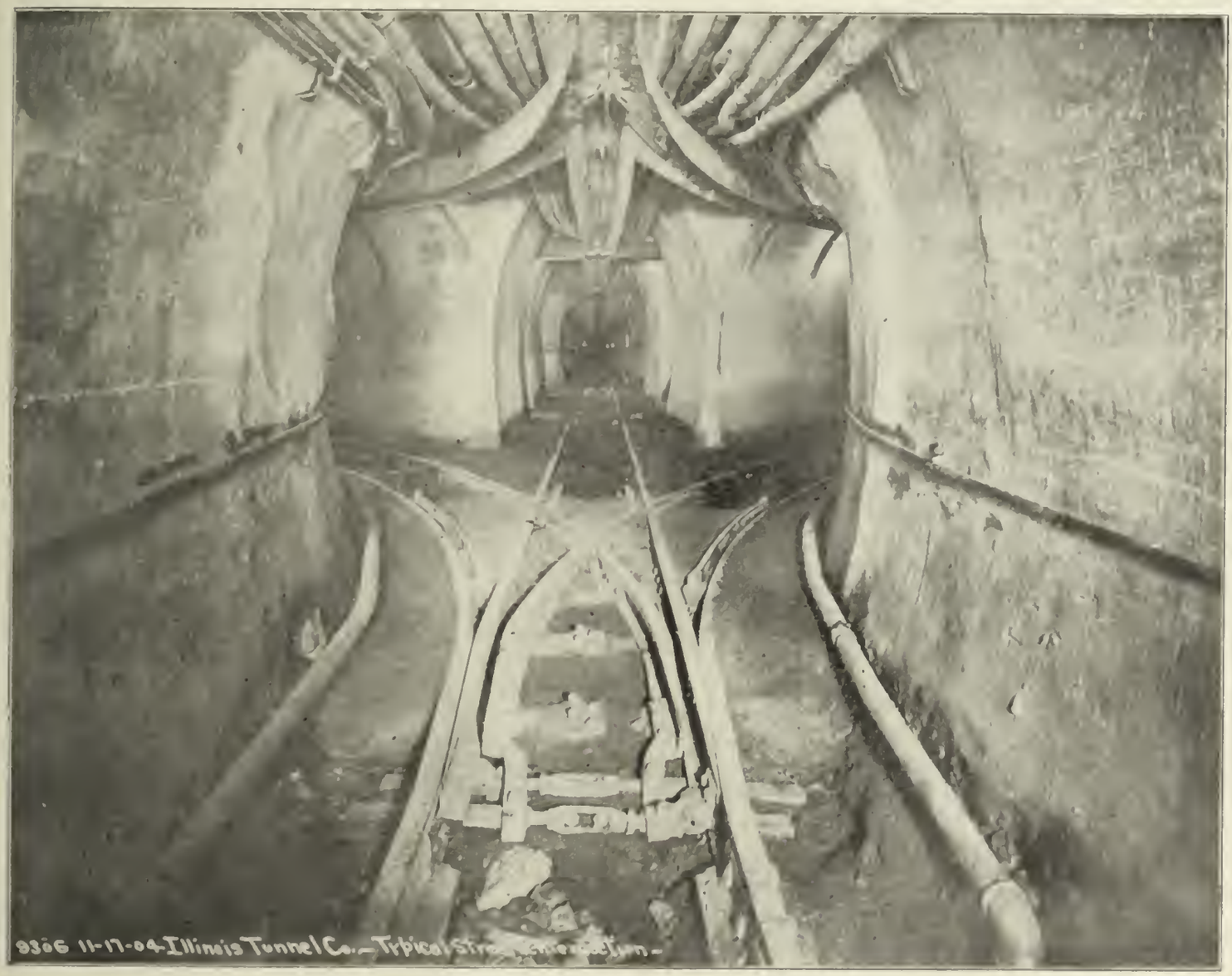
activity, the subterranean route is full of energy. The ultimate effect of this development in eliminating street traffic in many of its phases must revolutionize conditions relating to many large concerns. It seems impracticable to ever hope to carry with this form of transportation, the more unwieldy and bulky freight, but in the volume of lesser package shipments, an enormous business may be transacted, and a new feature in city carrier work, bring more safety and promptness. Care and responsibility ought to be more effective than in many of the teaming methods now operative.

Some official changes of a recent date have brought to the presidency the practical wisdom of Samuel McRoberts, with W. J. C. Kenyon as vice-president, as the operating factor. The energetic efforts being put forth to advance the plans of the subway company are such as to command the attention and confidence of every one, in the certainty that the full scope of opportunity as presented in this enterprise, will be utilized in every way. Everything in any practical line relieving the railways and shippers of a congestion, that each avenue that is new decreases, is a welcome development.

If the belief that Ogden Armour and E. H. Harriman are shaping the finances through the new administration has foundation in fact, capital will undoubtedly be provided for all the development anticipated whenever it is required.

VALUE OF RAILWAY EXPERIENCE.

It is interesting to note the effect of changing the point of survey as it relates to economic questions. Chicago has some prominent instances, one being H. C. Barlow, Executive Director of the Chicago Association of Commerce. Before his present incumbency, Mr. Barlow was for a short time engaged in looking after the traffic matters of a commercial combination of considerable extent, and was successful in giving valuable service. Prior thereto he was in railway life for many years, occupying at various times the position of general freight agent, traffic manager and president respectively. In the exercise of his powers as a railway officer his administration was such as to merit high praise for efficiency and ability. There is no doubt in my mind, nevertheless, that he could not escape the conditions of serving loyally in the well grooved lines of established usage and could not give definite form to theories he may have cherished relative to desirable reforms. Circumstances, however, have taken the former prominent railway officer to an eminent altitude in commercial life, where he can now review the enactments in which he at one time participated. What is the result? Growth in the application of equity. There is a new line of demarcation as between the rights of shipper and carrier not only apparent but possible of establishment. An entire change in vantage ground was to make clear a new perspective, and a way to advancement. It is a satisfaction to admit the capacity of Mr. Barlow to move wisely with opportunity, found in an absorbing environment special in character. By the very tenacity with which former affiliations retain their influence, however, is there assurance that the Association of Commerce, one of the most powerful organizations in the country, has in control a man who will not proceed to extremes nor involve them in controversies having no practical results because illogical in conception.



The benefit of such direction is two-fold in that it has knowledge of the point of conflict from both sides, and can secure substantial justice by fair compromise, realizing that exact justice to each individual is not possible In general, such results are not possible by conferences between those who have always looked upon conditions from the one viewpoint and from opposite sides, and the introduction of a factor knowing both sides has been necessary to insure a harmonious growth in our reforms.

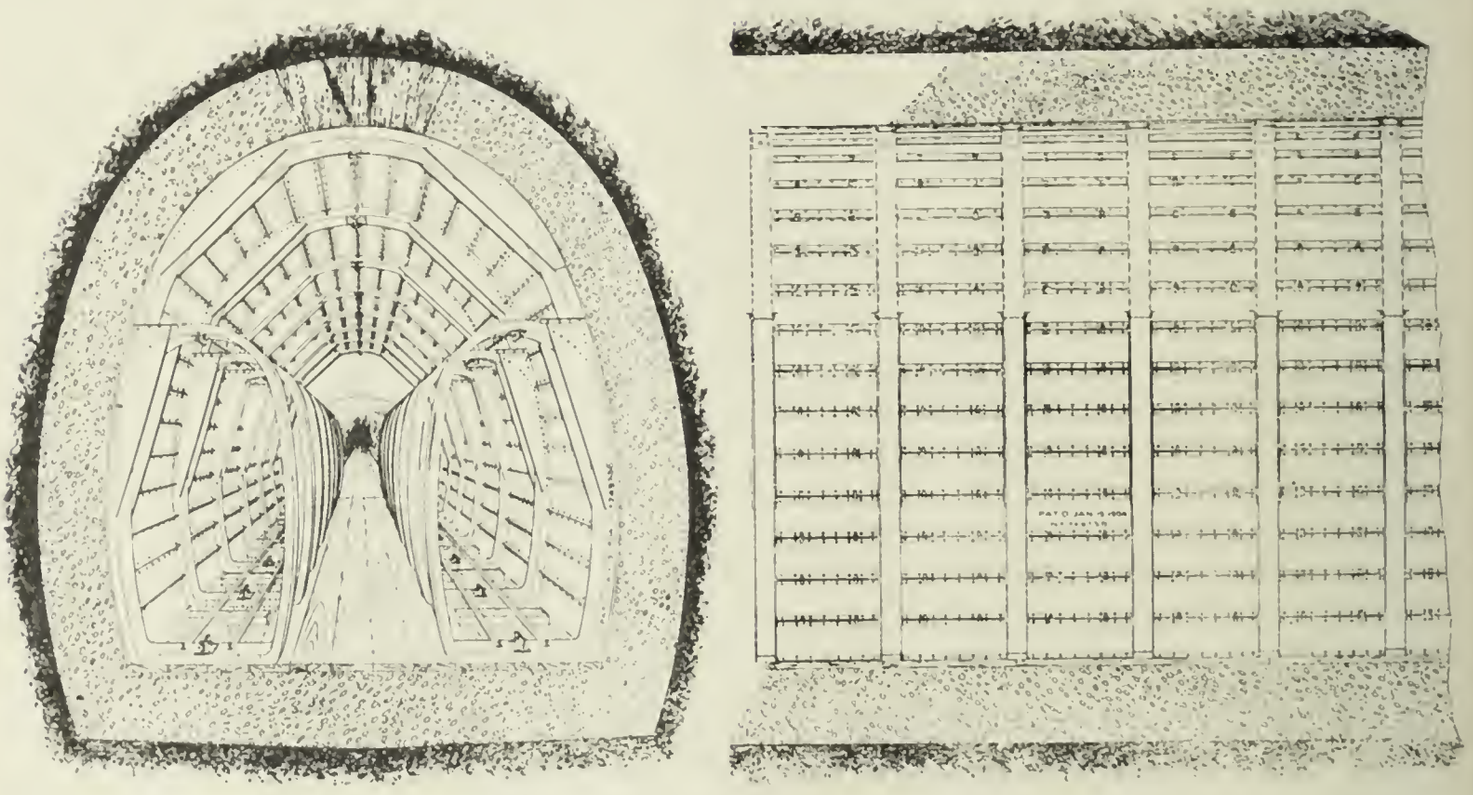
Another instance is that of E. B. Boyd, Assistant to the Vice-President of the Missouri Pacific Railway, who left the Rock Island System to become Manager of Transportation for the Chicago Board of Trade. Recently he returned to railway life and the praise meted out to him by the members of the Board of Trade as a harmonizer and developer in the grain trade was universal. Possibly it was not a matter of any public knowledge that Mr. Boyd had any reform tendencies of a more general character toward shippers when with the Rock Island System than his contemporaries. It must be, therefore, that a process of growth meaning greater fairness to both shipper and carrier was induced by his wider viewpoint, and a chance to see both sides. His return to railway life is a new departure to watch in effect. He has been serving both carrier and shipper in recent years and goes back again to the carrier. Will his broader education mean better service for the road and more satisfaction to its patrons? Will he establish precedent or follow it? How much is there in environment as to permanent effect? He is a strong man mentally and of original tendencies, and the prospects are good for some able traffic methods along modern and conservative paths.

St. Joseph, Mo., furnishes another example of the entrance of a railway official into commercial life. H. G. Krake, Chairman of the Business Men's League, was long a railway officer. He left the service for a considerable time to look after the traffic of large cotton interests in the south. His care of these matters was excellent and gave general confidence in his policy upon the part of the railways. Later he returned to railway work and in the writer's experience he was a much broadened and more valuable man than ever, notwithstanding the fact that he was always a careful student of traffic questions along liberal lines. His experience is the reverse of Mr. Boyd's in that he went into commercial employ again. My information is to the effect that St Joseph has been greatly benefited by his efforts and that they are meeting with the very best results.

It is, therefore, an almost irresistible conclusion that the two points of survey are necessary to have the well rounded man. The railway life is necessary to make the commercial chairman of any value in dealing with large questions, because it touches all lines of commerce, but to properly learn the shipper's needs and how far they are real or imaginary he must at some time or other be a part of them If, thereafter, railway service can lure a former employe back to the ranks he goes with a clear understanding of his work and obligations to both parties.

MILEAGE REPORT OF THE PENNSYLVANIA.

An idea of the vastness of the Pennsylvania Railroad System—and its importance to the country it traverses—is to be obtained from figures in the annual "Record of Transportation Lines," compiled by the maintenance of way departments of the system since January 1, 1908. These figures show a total mileage of 11,080.60, of which 6,154.63 are located east of Pittsburg and Erie, and 4,925.97 west of Pittsburg. The lines penetrate thirteen states and the District of Columbia, the greatest mileage being in Pennsylvania, where the system has 4,067.48 miles of line. Ohio is second, with 1,831.13 miles, and Indiana is third with 1,541.82 miles. There are 823.06 miles of line in New York, and 771.93 in New Jersey. Illinois has 635.24 miles, Maryland 552.70, Michigan 435.36 and Delaware 274.05. In the District of Columbia and each of the states of Kentucky, Missouri, Virginia and West Virginia—termini of different portions of the system—the mileage is less than 100. The total trackage of the system amounts to 23,572 miles, of which 13,788 are east of Pittsburg, and 9,784.10 are west of that point. The intensive development of the system, to meet the requirements of commerce, in recent years is to be seen in the fact that while the mileage has increased only 518.15 since December 31, 1903, the total trackage has increased 3,027 miles. The system at the present time has 3,241.90 miles of second track—about one-third of the total; 763.28 miles of third track, 551.56 miles of fourth track, and 7,934.98 miles of sidings belonging to the company.



Steel Ribs and Lagging Used in Forming Concrete for the 12-Foot by 13-Foot Construction, Chicago Subway.

The general passenger department of the National Lines of Mexico has issued a handsome calendar, bearing a series of six artistic pictures of the various types of feminine beauty for which that country is famous. This department is also sending out other attractive literature advertising the features of Mexico

POLITICS VS. PROSPERITY.

The Wall Street Journal in a recent issue comments thus on the financial situation as it now stands:

"This is the state of things: We have had our liquidation and panic. We have squeezed the water out of capitalization. We have got rid of a dangerous inflation. We have had a house cleaning in banking. Everybody now wants a return to 'good times.' Everybody is anxious for a reviving trade, for the opening of factories, for the full employment of freight cars and for the maintenance of profits and wages. There is nothing which the people as a whole are so eager about as that. There would seem to be no reason why their aspirations should not be gratified. Apparently there is no famine or other disaster in sight. Everything is favorable for a return to normal business conditions except one thing. We now have money enough and credit enough and transportation facilities enough for a revival. What then is there in the way?

"Just this: Politics."

In a measure we believe that the Wall Street Journal has the situation sized up about right, but also believe that it is largely within the power of the people to determine whether or not politics are to stand in the way of "good times." If the business men and the voters in general will go ahead vigorously in the execution of their duties and pay little or no attention to the rantings of the demagogue and office seeker there will be nothing to fear from the effects of politics.

It is believed that the railroads can be instrumental in bringing about good times and assisting in restoring confidence. Many manufacturing plants have resumed operation, which, of course, makes "good times" in their community, but the territory covered by the railroads means practically the whole country, but it would be hardly fair to assume that they can stimulate all lines of business everywhere. The Pittsburg (Pa.) Post assumes that the roads should be the first to move to restore confidence and intimates that they could do so if they would. It says that "greater impulse could be given in both a sentimental and physical way by the railways, and it will be good business tactics as well." It then cites the fact that there are thousands of cars standing idle that need repairing and "if the roads would strain every effort to get their rolling stock and roadbed into prime condition, the stimulus of returning employment would help many communities where trade now languishes." That is a logical way outside parties look at it, but the roads have reasons why they cannot make those expenditures now, however great may be their desire to do so. Obligations contracted when business was flourishing must be met regardless of the falling off in traffic receipts. It is safe to predict that the railways will be among the first to make every effort to stimulate business as soon as it is possible for them to do so, as no class of people are more eager to see confidence restored and "good times" on every hand than the railway managements, and when it comes to bringing about such conditions the public can count on the roads being among the very foremost in this good work.

Another interoceanic railway is open and bidding for traffic between the Atlantic and Pacific. The recent completion of the Guatemala Railroad from Port Barrios, on the Atlantic coast, to the city of Guatemala, where it connects with the Central Railroad, makes another through rail route across Central America. The distance from Port Barrios to Guatemala City is 196 miles, and from the latter to the Pacific coast to San Jose via the Central is 75 miles, making a total of 271 miles across the continent. The Guatemala railroad was started about twenty-five years ago by the government of that republic, but was abandoned after building 133 miles, and turned over to American capitalists, who completed it to the capitol city on January 19, 1908. Weekly steamship service is being made between New Orleans and Port Barrios, and it is possible to make the trip from Guatemala City to New Orleans in five days. The opening of this through road presents splendid fields for the development of business for firms in the United States.

After more than six months' time in investigation, the Royal Commission appointed to investigate the Quebec bridge disaster at Quebec, has made a report at Ottawa, Can. It was presented to the Minister of Railways for the consideration of the Canadian Parliament. The commission finds that the failure was due to errors in the design of the bridge and not because of any defect in material or method of construction. The blame seems to fall on the engineers who designed the bridge, because they failed to recognize that the formulae usually employed in proportioning members of bridges of ordinary size, require modifying when applied in designing such large members as those used in the Quebec bridge.

The Great Northern is making a record for itself by showing an increase in its earnings this year over the same period of 1907. For the month of February the road earned $2,840,938, an increase of $184,065 over the earnings of the same month in 1907. For the eight months ending March 1, 1908, the road earned $40,847,912, gross, an increase of $5,069,269 over the corresponding period of the year before. These figures reflect creditably on the prosperous condition of the country through which it passes, also upon the management of the road.

J. W. Kline, editor of The Blacksmiths' Journal, writes in the March issue as follows:

"Wall Street frowns at signs of improvement. So reads the headlines in the Pittsburg Dispatch. This is what we have been confident of ever since the slump, and we are still firmer as we read of the doings of these Wall Street gamblers. They propose to keep the country in a panicky condition until after the National Conventions if possible, so as to scare the voters and thus whip them into line. It seems to be a question now as to whom will govern—President Roosevelt or these financial highwaymen. Every voter in America should rally to the assistance of our noble President, and as he wields the big stick, let us hurrah!"

The comment seems to give proof of an impression we have felt was a result of conditions and a very unfortunate result. It is that capital is considered in some quarters as contesting with the president for supremacy in government. This is not the case by any means, but a belief of this character has the effect of placing all progressive men in a false light. Labor no more than any other portion of our citizens wishes to see the honest rich man in the proper pursuit of his business hampered by unjust charges and all of us who work for our living must have the man of means to pay us. We ought to be careful, then, in any attacks upon capital to so clearly exonerate the man who does right in any walk in life that our complaint is seen not to be against any class but against the evil-minded and dishonest people in every class.

FROM MY OBSERVATION CAR.

By R. R. Jester.

A good railroad is always in demand, but it is not often that an official is called upon to act in the same capacity on two roads. Mr. P. H. Houlihan, who has been general superintendent of the Clover Leaf for several years, was recently chosen to a similar position on the Chicago & Alton. Mr. Houlihan is a practical railroad man who is familiar with every detail of the science of railway operation. He commenced at the very bottom of the service and did not take any "short cut" to the higher places, but worked his way faithfully through each minor place till he got to the front. Before taking service with the Clover Leaf he was division superintendent of the Burlington with office at Brookfield, Mo. Despite his duties while railroading in Missouri, Mr. Houlihan had time to do something in a literary line, by publishing a book on practical railroading. It is a book with considerable merit and reflects creditably on its author. Mr. Houlihan has a host of friends in the West who are glad to hear of his merited success.

Hannibal, Mo., has been breaking into print and history for years and is always trying to lay some claim to distinction one way and another. Besides bearing the name of a great general, being the home of Mark Twain, being the owner of a famous cave, she now has notified us that the first mail car ever used in the United States service was made there. That historical car was used by Uncle Sam to carry mail west bound to the frontier town of St. Joseph, Mo., where it was turned over to the "pony express" for the trip across the plains of the untamed West. Hannibal is something of a river town, a gateway in railway travel and one of the best equipped shops of the Burlington is located there. Hannibal has been the home and headquarters of quite a good many railway men who have arisen to distinction in the service, among whom is Mr. Henry Miller, now general manager of the Wabash.

The manager of one of Chicago's roads was the recipient of the following application, which shows how a man likes to speak for others as well as for himself. He says:

"Dear Sir:—Kindly I to take courage to write to you in anyway write to me when open the position in the tracks. Because I have about thirty-five workmen—all my cousin and friends and like to them to work in the yours Co. Because they were working in the past year they are pleasanted from this Co. and like to working again. If you like let me know and I will be obliged."

Perhaps there is no class of men who suffer more inconvenience from a thoughtless public than the employes of a railroad. An agent of the Erie, who is a regular reader of the Railway Journal, has sent us the following set of rules, and we believe they are good enough to be put into print. If every agent would have a copy of them printed in good-sized type on a card to hang in their stations, maybe it would open the eyes of some people who put themselves out, seemingly, to bore and make extra work for busy officials. The rules follow:

1st—This station is open day and night from 1 a. m., January 1st until 12 p. m., December 31st. We never close and the agent never gets tired.

2nd—Tickets are not for sale until the train gets here. Wait until then to get your tickets and check your baggage.

3rd—The agent is never too busy to sit down and visit, so bring your friends and stay all day.

4th—Never hand the agent the right change, for he always has plenty on hand and he likes to make change; the bigger the bill the better.

5th—Children are allowed to ride free until they get married, then the company will give them passes; so always bring the children—we all love them.

6th—We are allowed to check anything that you can get a check on. If you want to send anything to your friends, bring it to the depot; we will check it and you mail your friends the check. That is cheaper than buying a ticket and will save express charges.

7th—When the train arrives all the people that are not going please crowd around the car steps and platform and do not let passengers on or off.

8th—In cold weather always leave the doors in the waiting room open, as the fire will burn better on account of the good draught.

9th—We are always willing to deliver freight at any time, so wait until you get through your day's work, hang around the stores until they close, then call. If we are not here, come to the house and we will get up and open the freight house for you; never mind the time.

10th—When the town goes to sleep come to the depot and stay awhile. We like to stay up all night and talk politics or anything that is interesting to you.

11th—If you run short of money we always have some on hand of the company's and they will be only too glad to let you have some.

12th—There are always plenty of lanterns, umbrellas, rubbers., etc., at the depot for the use of the patrons that live out in the country. If we do not have your size, let us know before leaving and we will send and get them for you, so that you will have them when you get back.

13th—The employes never eat, so don't attend to your business during business hours, but come and see us at meal time; we don't care.

The hand of fate rests heavily sometimes on people in Wall street as well as those in the humbler walks of life. George Gould can attest this fact. Just as his railway stocks took a terrible tumble, his best bulldog died. Verily, the way of the bondholder is thorny.

What is said to be the longest train ever handled in the West was hauled out of Kansas City by the Missouri Pacific on March 2 for Leavenworth, Atchison and other Kansas points, en route to Omaha. The train consisted of 173 box and cattle cars, most of which were empty. It was drawn by one ordinary freight engine. The cars were distributed at points en route. The train was so heavy that the fireman had to fire up every quarter of a mile, at each time using two bushels of coal. Those who saw it said the train was over two miles long.

The Pennsylvania has about completed construction work on its fourth tunnel under East river, connecting New York City with Brooklyn. The two mammoth shields, which have been approaching each other in opposite directions, touched about midway on March 18. Trains to be operated through these tunnels by the company will be moved by electricity. Another engineering feat that is of considerable interest to the commerce of New York and vicinity is the connection of the two sections of the great cantilever bridge over East river, known as Blackwell's Island bridge. While the bridge is not completed yet, it has reached that stage of perfection that it is possible to cross it on foot. When completed, this bridge will be the largest cantilever structure in the world, and will cost nearly $25,000,000. It will be double-decked and 8,449 feet in length, the main span being 1,182 feet between the towers. The upper deck will be used by elevated cars and foot passengers. The lower deck will be used by trolley cars, teams and pedestrians.

PERSONAL

EXECUTIVE, OPERATING AND PURCHASING.

C. B. Kols has resigned as asst. supt. of dining car serv. of the Big Four.

T. J. Leicham has been made chf. disp. of the Interoceanic at Cuautla, Mex.

J. A. Naugle has resigned as asst. to the vice-pres. of the Mexican Central.

N. A. Stedman has resigned as solr. of the International & Great Northern.

I. H. Shorey, strkpr. of the Wabash at Decatur, Ill., has been transferred to Peru, Ind.

T. C. Powell has resigned as vice-pres. of the Cincinnati, New Orleans & Texas Pacific.

W. F. Duane has been appointed strkpr. of the Trinity & Brazos Valley, at Teague, Tex.

E. C. Bagnell has been made genl. supt. of the Charlotte Harbor & Northern at Arcadia, Fla.

R. K. Smith has been elected second vice-pres. of the Mississippi Central, vice **L. L. Major.**

C. M. Boswell has been appointed supt. of the Lake Charles & Northern, at DeRidder, La.

W. G. Lerch has been made asst. to the pres. of the Mexican Central, office at Mexico City.

G. H. Criseman has been appointed asst. supt. of the Buffalo & Susquehanna at Debois, Pa.

Francisco de P. Alvarez has resigned as mgr. of the Pacific Navigation Co., at Guaymas, Mex.

D. T. Forbes has been appointed chf. trn. disp. of the Missouri, Kansas & Texas at Smithville, Tex.

J. W. Reinhart has been made asst. to the pres. of the Tonopah & Goldfield, office at Tonopah, Nev.

C. T. Williams has been appointed sec. to the receivers of the Seaboard Air Line, office at Baltimore, Md.

J. A. Sommerville has been made supt. terminals of the Mo. Pac. at Kansas City, vice **C. E. Carson**, resigned.

C. C. Woolard has been appointed trn. mstr. of the Cerro de Pasco Railway, with office at Cerro de Pasco, Peru.

W. S. Jenney has been chosen vice-pres. of the D. L. & W. in charge of the legal department, office at New York.

C. S. Maharg, div. supt. of the Canadian Pacific at Souris, Man., has been appointed supt. of the Saskatchewan division.

R. C. Jones has been appointed genl. mgr. of the St. Joseph Valley, at Lagrange, Ind., vice **G. F. Moore**, resigned.

J. L. Polk has been made vice-pres. and genl. mgr. of the Stephenville, North & South Texas, office at Stephenville, Tex.

Arthur L. Glass has been appointed genl. supt. of the Tampa & Jacksonville at Gainesville, Fla., vice **J. B. Cutler**, resigned.

Charles B. Houck has been appointed genl. mgr. of the Wilkesbarre & Hazleton, office at Hazleton, Pa.; effective on March 1.

Joseph C. Robinson, frt. trn. mstr. of the Boston & Maine at Malden, Mass., has retired, having been in railway service for 53 years.

A. H. Bright has been made genl. counsel of the "Soo Line," and **H. B. Dike** has been made genl. solr., office at Minneapolis.

W. J. Hopper has been appointed asst. treas. of the Georgia Southern & Florida and the Macon & Birmingham, at Macon, Ga.

H. K. Pinckney has been elected pres. of the Peoria & Pekin Union, vice **Curtiss Millard**, resigned. **J. H. Kiefer** becomes secretary.

H. G. Kruse has resigned as supt of the Peoria & Pekin Union to become trn. mstr. of the Minneapolis & St. Louis at Ft. Dodge, Ia.

F. L. Johnson, sta. inspr. of the Burlington at Chicago, has been appointed supt. of terminals at St. Louis, vice **J. A. Somerville**, resigned

G. D. Reynard, trn. mstr. of the Buffalo & Susquehanna, has been appointed asst. supt. at Galeton, Pa., and the former position is abolished.

D. M. Swobe has been appointed vice-pres. and trf. mgr. of the McCloud River Railroad at San Francisco, Cal., vice **S. O. Johnson**, resigned.

F. H. Ustick, div. supt. of the Burlington, has been appointed genl. supt. of the Missouri district at St. Louis, vice **George T. Ross**, resigned.

Fred A. Hortter has been appointed supt. of car serv. of the Boston & Maine, with headquarters at Boston, Mass., vice **H. E. Howard**, resigned.

Edgar A. Demeules, of Muskogee, Okla., has been made genl. sol. for the Midland Valley Railroad in Oklahoma and Kansas, with headquarters at Muskogee.

F. W. Peters, asst. frt. trf. mgr. of the western lines of the Canadian Pacific, has been appointed asst. to the second vice-pres., with headquarters at Winnipeg.

A. F. Brewer, supt. of transp. of the Denver & Rio Grande, has been appointed chf. clk. to the genl. supt. of the Southern Pacific at San Francisco.

Allen B. Cuthbert, prin. asst. eng. of the Pennsylvania Railroad, has been appointed act. supt. at Cresson, Pa., vice **E. J. Cleave**, granted leave of absence.

J. W. Leonard has been made mgr. of the Canadian Pacific eastern lines, office at Montreal. **G. J. Bury** is made genl. mgr. of the lines west, office at Winnipeg, Man.

R. E. Boswell, supt. of transp. of the Seaboard Air Line, has been appointed div. supt. at Jacksonville, Fla., vice **W. J. Jenks**, resigned to go with the Norfolk & Western.

W. S. Core has been appointed pur. agt. of the Colorado Springs & Cripple Creek District, the Midland Terminal and the Florence & Cripple Creek at Canyon City, Colo., vice **A. L. Boyd**, resigned.

Otto F. Wagenhorst has been appointed supt. of the Delaware & Eastern, with office at Margaretville, N. Y. **R. B. Williams**, genl. mgr., has been granted leave of absence on account of ill health.

P. Laden, div. supt. of the Illinois Central, has his jurisdiction extended over the Indianapolis Southern also. **B. F. Galvani** has been made div. supt. at New Orleans, vice **F. A. C. Ferguson**, resigned. **L. E. McCabe** is asst. supt. at Nashville, Tenn.

H. H. Shepard has been made div. supt. of the D. L. & W. at Scranton, Pa., vice **E. M. Rine**, transferred to Hoboken, N. J., vice **C. H. Ketchum**, resigned. **G. A. Poore** has been made supt. at Syracuse, N. Y. **W. M. Fletcher** becomes div. supt. at Bangor, Pa.

K. C. Holliday has been elected pres. of the Topeka Southwestern at Topeka, Kan., vice **W. L. Taylor**, who resigned to become pres. of the Topeka Southwestern Construction Company. **W. H. Davis** has been chosen vice-pres. in place of **Mr. Holliday.**

T. F. Lowry has been appointed supt. of the Great Northern at Havre, Mont. **S. A. Walker**, who has been appointed asst. supt. at Willmar, Minn., vice **F. S. Elliott**, who becomes supt. of the Northern division at Crookston, Minn. **P. D. Jamieson** has been appointed trn. mstr. at Havre, Mont.

James P. Goodrich, receiver for the Chicago, Cincinnati & Louisville, announces the following appointments: **H. C. Starr**, genl. coun.; **R. P. Dalton**, genl. supt.; **J. A. S. Graves**, pur. agt. and act. treas; **F. D. Hodgson**, aud.; **Wm. FitzGerald, Jr.**, genl. frt. agt.; **T. H. Gurney**, genl. pass. agt.; offices, Chicago, Ill.

The following appointments are announced on the Missouri Pacific: **W. J. McKee**, genl. supt., Southern district, Little Rock; **A DeBernardi**, supt., Atchison, Kan.; **W. E. Brooks**, div. supt., Nevada, Mo.; **W. E. Morrifield**, trn. mstr., Atchison; **J. J. Skinner**, chf. disp., Atchison; **J. F. Murphy**, div. supt., Van Buren, Ark.; **H. J. Scheuing**, supt., at Wynne, Ark.

TRAFFIC AND ACCOUNTING.

J. M. Daniel has resigned as agt. of the I. & G. N. at Laredo, Mex.

John F. Shea has been made frt. aud. of the West Maryland, office at Baltimore.

L. Snowden has been made aud. of pass. traf. of the P. & R., vice **C. H. Quarles**, resigned.

H. M. Hood has been chosen aud. of the Mobile, Jackson & Kansas City, office at Mobile, Ala.

C. W. Tomlinson, div. frt. agt. of the Baltimore & Ohio, has been appointed coml. agt at Chicago.

W. S. Hill has been made paymstr. of the Big Four at Cincinnati, O., vice **H. C. Horton**, resigned.

M. M. Reynolds has resigned as comptlr. of the National Lines of Mexico to go with the Grand Trunk.

J. D. Ruden has resigned as west. pass. agt. of the Southern at Houston, Tex., and the office is abolished.

F. M. Cockrell has resigned as coml. agt. of the I. & G. N. at Kansas City, and the office is abolished.

F. M. Tuttle has been made local agt. of the S. A. & A. P. at Eagle Lake, Tex., vice **F. Douglas**, transferred.

E. S. Wilson, heretofore indus. agt. of the Chicago & Alton, has been appointed pass. agt. at Springfield, Ill.

J. J. Mullane, trav. frt. agt. of the Trinity & Brazos Valley, has been transferred from Ft. Worth to Houston, Tex.

C. B. Wilcox has been made asst. genl. frt. and pass. agt. of the Tehuantepec National, at Rincon Antonio, Mex.

S. S. Bridgers, coml. agt. of the Norfolk & Western at Pittsburg, Pa., has been appointed div. frt. agt. at Roanoke, Va.

George Wansbrough has been appointed genl. pass. and tckt. agt. of the Beaumont & Great Northern at Onalaska, Tex.

C. W. Munn, indus. agt. of the Kansas City Southern, has been appointed genl. agt. at Joplin, Mo., vice **L. O. Scoville.**

R. M. Arnold has been appointed chf. of the tariff bu. of the Chicago, Indianapolis & Louisville, with office at Chicago.

W. H. Bryning has been appointed genl. frt. agt. of the St. Joseph & Grand Island at Kansas City, Mo., vice **H. V. Clark.**

W. S. Crane has been appointed car agent. of the Missouri Pacific, with office at St. Louis, vice **A. R. Duncan**, resigned.

A. C. Tumey has been appointed asst. genl. frt. agt. of the Chicago, Indianapolis & Louisville, with headquarters at Chicago.

J. F. Normile has been made frt. agt. of the Pennsylvania at Oil City, Pa., vice **W. S. Motheral**, transferred to Titusville, Pa.

W. C. Knowles has been appointed trav. pass. agt. of the Rock Island at Ft. Worth, Tex., succeeding **E. S. Sanders**, deceased.

George W. Andrews has been appointed genl. agt. of the pass. dept. of the Pacific Coast Seamship Company at Seattle, Wash.

W. T. Adams has been appointed coml. agt. of the Rock Island at San Francisco, vice **H. W. Adams**, resigned; effective May 1.

G. D. Thomas has been appointed trav. frt. and pass. agt. of the Burlington at Spokane, Wash., in place of **S. D. Hoover**, resigned.

John W. Hooks, trav. frt. agt. of the Atlanta & West Point at Montgomery, Ala., has been transferred to St. Louis, as coml. agt.

The title of **H. P. Thrall**, supt. of mail serv. of the Southern Pacific and the Oregon Short Line, has been changed to mail trf. mgr.

J. J. McQueen, Jr., has been appointed trav. frt. and pass. agt. of the National Lines of Mexico at Chicago, vice **J. P. Du Vinage**, resigned.

R. W. Crowell, agt. for the Interstate Despatch at Chicago, has been appointed coml. agt. of the Atlanta, Birmingham & Atlantic at New York.

J. G. Hollenbeck, div. pass. agt. of the Louisville & Nashville, has been appointed genl. agt. of the pass. dept. of the Missouri Pacific at Cincinnati, O.

C. N. Turner has been made chf. of trf. bu. of the C., M. & St. P. at Chicago, vice **W. E. Prendergast**, asst. genl. frt. agt., assigned to other duties.

T. J. Hudson has resigned as genl. trf. mgr. of the Illinois Central, the Yazoo & Mississippi Valley and the Indianapolis Southern, and the office is abolished.

F. C. Matthews has been appointed genl. frt. and pass. agt. of the Midland Terminal and the Florence & Cripple Creek at Colorado Springs, Colo.; effective on March 10.

E. E. Flinn, coml. agt. of the Grand Trunk at Cincinnati, O., has been transferred to Pittsburg, Pa., in a similar capacity, vice **A. D. Huff**, appointed div. frt. agt. at Ottawa, Ont.

J. C. Reister has been appointed coml. agt. of the San Antonio & Aransas Pass at Houston, Tex., vice **F. M. Tuttle**, transferred. **A. R. Canfield** has been appointed asst. coml. agt.

H. C. Archer has been made trav. frt. and pass. agt. of the Santa Fe at Torreon, Mex., vice **DeWitt Hammond**, resigned, to become genl. agt. of the Rock Island at Mexico City.

W. C. Bowles, genl. frt. agt. of the Pacific div. of the Canadian Pacific, has been appointed genl. frt. agt. of the central division at Winnipeg, Man., vice **W. B. Lanigan**, promoted.

R. T. G. Matthews, genl. agt. of the pass. dept. of the Missouri Pacific at Cincinnati, O., has been transferred to Kansas City, Mo., as asst. genl. pass. agt., vice **C. E. Styles**, resigned.

C. E. Chapman, livestock agt. of the Cincinnati, Hamilton & Dayton at Indianapolis, Ind., has resigned to become genl. mgr. of the Central Stock Yards Company of Louisville, Ky.

J. F. Murphy, cont. frt. agt. of the Baltimore & Southwestern at St. Louis, has been appointed coml. agt. at that place, vice **J. W. Lindsey**, transferred to Vincennes, Ind., as div. frt. agt.

W. K. Evans has been appointed coml. agt. of the Grand Trunk at Cincinnati, O., vice **E. F. Flinn**, transferred. **E. R. Bremner** has resigned as div. frt. agt. at Ottawa, Ont., and is succeeded by **A. D. Huff.**

J. M. Symonds has been appointed trav. frt. and pass. agt. of the Texas Midland at Terrell, Tex. **A. S. May** having been assigned to other duties, the position of trav. frt. and pass. agt. at Houston, Tex., is abolished.

W. B. Lanigan, genl. frt. agt. of the central and western divisions of the Canadian Pacific, has been appointed asst. frt. trf. mgr. of the western lines, with headquarters at Winnipeg, Man., vice **F. W. Peters**, promoted.

George Firman has been made sta. agt. of the Rock Island at Chickasha, Okla., vice **H. H. Gray**, transferred to Ardmore, Okla. **A. H. Cornell** is made agt. at Junction City, Kans. **R. L. Shelz** becomes agt. at McAlester, Okla.

C. L. Hilleary, asst. genl. pass. agt. of the Big Four has been appointed genl. pass. agt. of the Lake Erie & Western, the Ft. Wayne, Cincinnati & Louisville and the Northern Ohio, at Indianapolis, Ind., vice **S. D. McLeish**, who has been transferred to Evansville, Ind., as genl. agt.

De Los Thomas, div. frt. agt. of the Norfolk & Western at Winston-Salem, N. C., has been transferred to Roanoke, Va., as asst. genl. frt. agt., vice **O. Howard Royer**, deceased. **Francis T. Brinkley**, div. frt. agt. at Roanoke, has been appointed to succeed Mr. Thomas at Winston-Salem. **H. D. Wilkerson**, solng. frt. agt at Richmond, Va., has been appointed coml. agt. at Pittsburg, Pa., vice **S. S. Bridgers**, transferred.

Elmer McGraw has been made live stock agt. of the C. & A. and the Clover Leaf at National Stock Yards, Ill. **Lou E. Mahan** has resigned as genl. livestock agt. and **C. J. Chisam**, asst. genl. frt. agt., will have supervision of that department. **W. J. Robinson** has been made livestock agt. of both roads at Kansas City, and **R. W. Stutsman** is livestock agt. at Springfield, Ill. **B. S. Carrick** has been made div. frt. agt. at Springfield, Ill.

H. D. Wilson has resigned as asst. genl. pass. agt. of the Missouri Pacific at Memphis, Tenn., and **C. McD. Adams** has resigned as genl. agt. of the frt. dept. at that point and these offices are abolished. **C. E. Rountree**, trav. pass. agt. at Memphis, has been appointed city pass. and ticket agt. at that place. **C. H. Jackson** has been appointed coml. agt. at Memphis. **A. R. Malcom** has been appointed actng. genl. agt. at Milwaukee, Wis., vice **L. D. Knowles**, genl. frt. agt., resigned. **J. C. Forrester**, coml. agt. at Cincinnati, O., has resigned. **C. H. Rohrer**, dist. pass. agt. at Joplin, Mo., has been appointed pass. and ticket agt. at that place, and the former office is abolished. The position of trav. pass. agt. at Chicago, held by **C. C. Carson**, has been abolished. The New England pass. agcy. at Boston, Mass., held by **Louis W. Ewald**, has been discontinued. The office of trav. pass. agt. at Kansas City, Mo., filled by **S. E. Lowe, Jr.**, has been abolished. **J. G. Perin**, frt. and pass. agt. at the City of Mexico, has been appointed coml. agt. at that point. **J. S. Campbell** has been appointed trav. frt. and pass. agt. **J. E. Sadler**, genl. agt. of the frt. dept. at Birmingham, Ala., has resigned. **T. Hughes**, trav. pass. agt., and **C. T. Platt**, contg. frt. agt. at Omaha, Neb., have resigned. **William Q. Hodgson** has resigned as trav. frt. agt. at Ft. Worth, Tex. **T. A. Helm**, trav. frt. agt. at San Antonio, Tex., has been transferred to Dallas, Tex., as solng. frt. agt. **R. Meyer** has been appointed actng. coml. agt. at Cincinnati, O., vice **J. C. Forrester**, resigned. **H. J. Owens** has been appointed actng. coml. agt. at Kansas City, Mo., vice **M. D. Darnall**, resigned.

ROADWAY AND ENGINEERING.

W. J. Ijams has been made asst. eng. of the N. Y. Cent. at New York.

J. C. O'Connor has resigned as roadmstr. of the Missouri, Kansas & Texas at Hillsboro, Tex.

John C. Sesser has resigned as eng. of maint. of way of the Burlington to engage in business in Chicago.

T. B. Ashworth has been made roadmstr. of the Col So., N. O. & Pac. at Opelousas, La.

E. W. Wiggins has been made supt. of bridges and bldgs. of the New York, N. Haven & Hartford, office at New Haven, Conn.

C. G. Delo, eng. of maintnce. on the C. & A., has his authority extended over the entire system, **W. E. Emery** having resigned, office at Bloomington, Ill. **Wm. Muff** has resigned as supvsr. at Mexico, Mo.

H. H. Eggleston, supvsr. of bridges and bldgs. of the Chicago & Alton, has been appointed actng. supt. of bridges and bldgs. of the Toledo, St. Louis & Western at Frankfort, Ind., vice **C. L. Kinney**, who has been granted leave of absence on account of ill health.

MECHANICAL.

Stephan A. Motta has been made genl. fore. of the Mexican Central at Aguas Calientes, Mex.

W. J. Spearman has been appointed M. M. of the Idaho & Washington Northern, Spirit Lake, Idaho.

T. S. Lloyd has been made Supt. M. P. of the D. L. & W. at Scranton, Pa., vice **R. F. Kilpatrick**, resigned.

W. A. Nettleton has been made Genl. Supt. M. P. of the Rock Island, office at Chicago, vice **T. S. Lloyd**, resigned.

J. W. Monroe, fore. of shops of the Rock Island at Cedar Rapids, Ia., has been appointed div. M. M. at Chickasha, Okla.

G. W. Lillie, supvsr. of the car dept. of the Frisco at St. Louis, has been transferred to the mot. power dept. at Springfield, Mo.

F. L. Carson has been made M. M. of the Mexican Central at Torreon, Mex., vice **O. R. Hale**, transferred to Cardenas, Mex.

B. J. Farr has been appointed M. M. of the Northern Railway, with headquarters at Limon, Costa Rica, vice **T. H. Jordan**, resigned.

F. B. Edwards has been appointed asst. rd. fore. of eng. of the Pennsylvania Railroad at Oil City, Pa., vice **H. R. Brigham**, promoted.

T. F. Carbery, M. M. of the Missouri Pacific at St. Louis, has been transferred to Ft. Scott, Kan., vice **J. J. Reid**, transferred to St. Louis.

C. E. Stanton has resigned as trav. eng. of the M. K. & T. at Smithville, Tex., and that division is covered by **W. P. Danforth**, of Parsons, Kan.

C. Paskesen, genl. fore. of the El Paso & S. W., has been transferred from Alamogordo to Tucumcari, N. M., owing to removal of shops.

George J. Hatz, M. M. of the Chicago & Alton, has been appointed supt. of shops of the Union Pacific at Omaha, Neb., vice **H. Stovel**, deceased.

George S. Hunter, formerly M. M. of the International & Great Northern, has been appointed M. M. of the Kansas City Southern at Pittsburg, Kan.

George A. Hancock, Supt. M. P. of the Frisco System, has been made Genl. Supt. M. P. of the road, including the C. & E. I., vice **W. A. Nettleton**, resigned.

G. T. Neubert has been appointed M. M. of the Chicago Great Western, in charge of the shops at Oelwein, Ia., vice **W. P. Chrysler**, made supt. of mot. power.

W. E. Looney has been appointed genl. car fore. of the International & Great Northern at Palestine, Tex., and the position of gen. fore., held by **R. S. Marsh**, has been abolished.

William Gell, M. M. of the Grand Trunk at Ottawa, Ont., has been appointed M. M. of the Grand Trunk Pacific, in charge of mot. power, cars and shops, with temporary headquarters at Winnipeg, Man.

OBITUARY.

Joseph E. Dubriel, asst. P. M. of the Rock Island, died on February 24th at Topeka, Kan.

C. E. Johnson, trav. pass. agt. of the Northern Pacific at Los Angeles, Cal., died on March 13th.

Albert C. Killiam, chair. of the ry. com. of Canada, died on March 1st at Ottawa, Ont., aged 58 years.

W. J. Knight, dist. atty. of the Illinois Central at Dubuque, Ia., died on February 23rd at the age of 71 years.

George M. Chapman, aud. of the Chattanooga Southern, died at Chattanooga, Tenn., on March 4th, aged 81 years.

John K. Kerr, trn. mstr. of the Monongahela Connecting Railroad at Pittsburg, Pa., died on March 3rd, aged 37 years.

Clarence C. Olney, Sr., asst. treas. of the Atlantic Coast Line, died at Charleston, S. C., on March 7th, aged 65 years.

James Dun, coultg. eng. of the Atchison, Topeka & Santa Fe System, died at St. Augustine, Fla., on February 23rd.

C. T. Hempstead, formerly genl. pass. agt. of the New York, New Haven & Hartford, died on March 6th, aged 64 years.

Thomas Race, asst. eng. of the Chicago, St. Paul, Minneapolis & Omaha at St. Paul, Minn., died on March 13th, aged 52 years.

John B. Morgan, div. M. M. of the Toledo & Ohio Central, died at his home in Bucyrus, O., on March 17th at the age of 74 years.

William F. Hallstead, formerly genl. mgr. of the Delaware, Lackawanna & Western, died at his home in Scranton, Pa., on February 23rd at the age of 71 years.

William E. Waugh, genl. agt. of the Commercial Express, a fast freight line of the Grand Trunk Railway, died at his home in Milwaukee, Wis., on March 14th, aged 53 years.

Russell Harding, formerly vice-pres. and genl. mgr. of the Missouri Pacific System, and since November 15th, 1905, connected with **H. B. Hollins & Co.**, bnkrs. and brkrs. of New York city, died on March 3rd, aged 51 years.

ENCOURAGING OUTLOOK.

In a recent issue of the Contractor there appears the following comment:

"During no other financial depression which has occurred in the country's history has the railroad situation been as encouraging as it is today. In 1873 the railroads were notoriously overbuilt. Lines had been constructed on which no adequate returns could possibly be expected for a number of years. The proportion of railroad mileage to population and to the business of the country was high. Railroads had been built as a speculation and not in response to the distinct demands of the people. The people's money was thus tied up in lines which were bringing little or no returns.

"When the panic of 1893 came on we had almost an oversupply of railroads, following the unprecedented activity in railroad building during the preceding five years. The country could well afford to take a respite from this kind of enterprise, without any one being the loser. Such a condition does not now exist. It is well known that the railway construction even with the activity of the past two years, has not more than kept up with the increase in population and has actually fallen behind the phenomenal expansion of the business of the country. There is an insistent demand for railroads which can not be ignored. Railroads must, therefore, continue to be built, and at the present ratio of increased mileage they will continue to bring in a profitable return on the investment.

"The argument may be brought forth that the cutting down of rates has made railroad building less remunerative; but the same argument was advanced in 1893. A railway paper, during that period, said: 'Rates of fare and freight have gone down to a point which on a large proportion of the mileage of the United States leaves little or nothing for the capital actually invested.' And yet in the period which has followed the railroads have had their most marvelous development and have paid handsome dividends, even on inflated capitalization."

There is in the foregoing some consolation for those of us who have been forecasting rather along pessimistic lines. The possible chance to get away from precedent, both as to finances and railway conditions, lets hope throw in a little sunlight.

According to the last annual report of the Pennsylvania Railroad, the stock of this company is held by 57,226 persons, of whom 26,741 are women. These figures do not include the 20,793 shareholders in the various subsidiary companies. There are about 96,000 shareholders on the books of the United States Steel Corporation.

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Official Organ, RAILWAY JOURNAL, Chicago, Ill

TWELFTH ANNUAL CONVENTION, NATIONAL ASSOCIATION OF RAILWAY AGENTS, LOS ANGELES, CAL.

Precisely on schedule time, Saturday, February 8th, at 5:30 p. m., in response to the signal of an A. T. & S. F. conductor, the wheels under the National Association of Railway Agent's special train of seven cars began to revolve and, leaving the snow and ice of Chicago, the long journey to the Los Angeles convention was commenced. Hand shaking at once became general and every one went right to work renewing old acquaintances or forming new ones, to the end that the entire train soon presented as much activity as an afternoon sewing circle. These are things that go far to gladden the heart and it seemed pleasant to contemplate that such congeniality was in store for the big family during their twenty days sojourn. Sentimentality suffices to a certain degree, after which the sterner affairs of life have a place. Dinner disposed of shortly after leaving, retiring for the night gave all a practical opportunity to observe that his every want in dining and sleeping car was going to be well taken care of.

Spending the first night in riding, daylight found our train at Kansas City and soon we were speeding over sunny Kansas plains. Several short stops were made at some of the more progressive towns and the excellent speed maintained brought us to the first scheduled stop, La Junta, about six hours ahead of time. La Junta abounding in Indian relics and legends, and our party took aboard a liberal supply of each of these commodities.

Passing the beautiful Raton mountain scenery by moonlight, the next halt of consequence occurred at Santa Fe. Here in striking contrast is seen the modern capitol building just completed and the old adobe state house in which General Lew Wallace wrote "Ben Hur" when territorial governor. Here also is found the ancient church and many residences constructed out of local clay more than two hundred years ago and still in a good state of preservation. Albuquerque was reached late in the evening and the time profitably spent in sight seeing. Later on a reception and dance as guests of the Chamber of Commerce at their handsome home.

At Laguna more interesting features of Indian life were seen. Next in turn came that gigantic freak of nature, Grand Canyon of Arizona, and our train stopped there about midnight in the rare atmosphere of about 5,000 feet altitude and a foot of snow. In the early morning, nothing daunted, about forty members of the party mounted a like number of sure footed "mountain canaries" and made the round trip over a ten-mile tortuous trail into the depths of the canyon. The remainder of the party indulged in drives and sightseeing, and all departed at 9 p. m., realizing as never before the grandeur of the canyon.

The majority of us being accustomed to severe climatic changes supposed there was nothing more in that line to be learned, but when the window blinds were drawn on a scene of snow and ice and nearly zero temperature and we again took up flight, the "oldest inhabitant" had to acknowledge defeat when on awakening next morning near the California line he beheld wild flowers blooming in the fields and palms growing in abundance. Revelations thereafter came thick and fast and we began to understand why California people say they never pretend to tell more than half the truth when describing fruit, flowers and climate. Any modesty in this brief review may therefore be termed native "conservativeness."

A change in schedule brought the train to San Bernandino about 7 p. m., February 13th, and the whirl of California entertainment opened up with a complimentary car ride and theatre party. Staying in the delightful city over night, we were greeted in the morning by a large and enthusiastic reception committee from Los Angeles, who gallantly presented the ladies with large boquets of violets. We unconditionally surrended to these bold fellows and their reinforcements and willingly followed them even through other people's orange orchards.

San Bernandino with its trolly ride and matinee, Redlands with its tallyho drive up Smiley Heights, Riverside and its beautiful Magnolia and other avenues, Pomona with its twenty-mile automobile ride through the surrounding country, and its souvenir crates of oranges; confronted everywhere by fruits, foliage and flowers; these, with the cordial greeting received on every hand, formed impressions of the brand that won't wear off.

Reluctantly boarding the train at Pomona the last stretch of the outbound run was soon under way, and passing through a continuous panorama of organized lemon orchards, vineyards, palm drives, etc., we arrived at the Convention City about 7 p. m, February 14th. Our party was at once piloted to the elegant Chamber of Commerce building, where California products are displayed to such good advantage, and the customary exchange of official compliments were indulged in and a genuine social time passed until a late hour.

The entire party assembled in the Hotel Hayward parlors at 10 o'clock Saturday morning for the opening convention session. Speeches of welcome were made by a number of city authorities, railroad officials and business representatives and responded to by Association officers. An unusually profitable convention followed, the customary number of topics coming up for discussion and a large amount of business being disposed of at the various sessions. All the old officials of the N. A. R. A. were re-elected for the ensuing year.

Then followed four days of such sight-seeing as would make the experienced globe trotter "sit up and take notice." One day was devoted to Catalina Island, the glass bottom boats, the seals and ocean ride, another to the beautiful scenic electric climb up Mt. Lowe via the Indian village, Cawston Ostrich Farm and Pasadena, the third to the interesting "Balloon Route" 70-mile tour of country and seashore and the last days to Los Angeles proper.

Of the many delightful experiences our Association has had the good fortune to participate in this week in Southern California freely goes down in history as one of the very brightest and best. "Time and tide waits on no man," so, according to schedule, February 19th brought to hand our enforced departure.

As if reluctant to have us leave the land of perpetual sunshine, the management of the Arrowhead Hotel had arranged for a stop at San Bernandino and ride by trolley to their famous resort. An elegant spread was provided and the evening devoted to examining the hotel and mud baths, closing with a social time and dance. Boarding the train at Colton about midnight we sped eastward over the Southern Pacific, making El Paso, Tex., the next stop. Here we were given an electric car ride around the principal business and residence section of the progressive city and across the Rio Grande to Juarez, Mexico. Many interesting features of Mexican life were observed at this point, the market and shops proving of especial interest.

Next San Antonio, another Texas city, was taken in by trolley car line and the time from 2 p. m. until midnight was profitably put in at sight-seeing. Houston next claimed attention and the last Sabbath enroute was spent here and in

a side trip to Galveston and the Gulf. Moving out of Houston at 8 a. m., the 24th, an excellent knowledge of Southern agricultural resources was gained in the daylight ride to New Orleans along rice, cotton and sugar plantations and in view of the valuable cypress forests.

Late Monday evening the train was transferred across the Mississippi by ferry at Algiers and we arrived at New Orleans in time to enjoy the evening. Tuesday forenoon brought the only rain encountered on the trip, but long before the street car ride had finished the skies were again clear, permitting a pleasant tour of this interesting Southern metropolis. A river trip along the shipping, elevator and harbor facilities, past the scene of the Battle of New Orleans and many other places of interest on the pleasure steamer J. S. took place at 3 p. m., and a vaudeville performance at the Winter Garden completed the very enjoyable programme prepared by our Second Vice President and the local railroad and business men.

The homeward trip proper via the Illinois Central was taken up at midnight the 26th and included a stop at Memphis. This point was reached shortly after noon the following day and a large reception committee came down the line to greet us. On arrival, their work was supplemented by a comimttee of ladies, and what the both of them did to us was a plenty. An electric car ride around the busy and beautiful city, a matinee party, and at the last a banquet and eloquent speeches rounded ont in full measure this happiest yet of all excursion-conventions.

Daylight of the last day's movement found us traveling through southern Illinois and the party for the first time saw the, to them, familiar sight of snow and ice in the month of February.

Thus is, all too briefly, chronicled a very small proportion of the delights, the pleasures of personal association, courtesies received, friendships formed and benefits derived through a better personal knowledge of the great country we are proud to owe allegiance to. Adieus were reluctantly spoken when the Twelfth Annual Convention run of 5,500 miles terminated at Chicago in perfect safety on February 27th. Our friends departed for their respective homes, each in his heart treasuring the hope that we may always abide brothers and, ultimately, be permitted to convene in the land of eternal "eucalyptus, palm and fig, orange grove and flowers."

E. E. Flack.

GOVERNMENT OWNERSHIP.

Under government ownership of railroads would the status of railroad employes be better than it is under the present corporate system of ownership?

This question—somewhat differently phrased in the title but unchanged in its meaning—was one of the topics discussed at the recent N. A. R. A. convention at Los Angeles, Cal. The following leading paper on the subject was read by Mr. E. E. Flack, Agent Vandalia Line, Effingham, Ill.:

The air-castle, known as Government Ownership of Railroads, has been successfully built and destroyed, alike by individual and political party, until the committee that selected the topics for the present convention decided to have the matter settled beyond a doubt by asking the N. A. R. A. to give its opinion. In a sense the committee showed good judgment by referring the question to a class of men who are accustomed to working out knotty problems, but if the verdict returned looks anyway like some of the claims these men help to wind up, it will show a discount of the proposition 50 per cent. While the question is of much importance to shipper, consumer, investor, and wage earner, and almost every other interest, it is natural that we should view it from the standpoint of the railroad agent, because of his peculiar concern in the proposed or supposed change. Some figures, and a few facts taken from foreign government operation of railroads, will be submitted, but as American railroads have never experienced Federal control or government management, deductions as to how such conditions would actually effect the railway employe, or the public and business interests, at large, of the country, must be more or less speculative and only logically conclusive

The railroads of the United States are managed in much the same broad principle as that on which the constitution was planned, viz., that all men enter the service on a perfect equality, but the level is not long maintained there, or in citizenship, for the reason that all men are not equal in their industry, native ability, education and intelligence. They work with different degrees of intensity and effectiveness, and soon find themselves, if agents, classed at small, medium sized, or large terminal stations, and mayhap in the list of staff—or traffic officials, accordingly as merit is brought to recognition. Therefore by the energetic man who is willing to give or take on the ground that to the strong belongs the race, the proposed change of ownership and management will no doubt be considered with disfavor because in it he sees individuality fading away and the reward for personal effort superseded by the "Dead men's shoes policy" of the army or the civil service method, which tells him that the job once obtained is his, and that his advancement will follow if he has only the patience to wait until the man just ahead of him is kind enough to die. Men work according to the measure of reward in store for them, and there seems a no more effective way for them to get out of the rut, and keep out of it, than to make it plain to them that promotion is intended for the truly worthy. An encouragement along this line is now enjoyed, which it is not presumable would exist, in a marked degree, under the proposed change. The ordinary government official, appointed by the administration, is unapproachable and is usually selected because of a peculiar fitness he has in handling men. Through observation and painstaking efforts, among the men under him, he could create a loyal and efficient following from the rank and file, which by nature and practice he ignores. The above, together with the question of wages, comes forcibly home to a greater part of our population than is generally supposed. For many years past more than one man in every ten employed in any gainful occupation, aside from agriculture, has been engaged in constructing and operating railroads.

Not only does the government find it impossible to attract men to keep the army ranks reasonably full, but reports show growing scarcity of recruits. A recent statement is authority for the fact that there are seventy-three vacant places in the corps at West Point, and young officers resign in numbers to engage in other callings. Small pay and slow promotion are the chief reasons.

Government clerks at Washington cried long and vainly for increased pay commensurate with the increased cost of living. The cold facts then hardly bear out the popular impression, that a government job is a primrose path, with little to do and plenty to get.

While these conditions are theoretical, so far as results to be obtained in the United States are concerned, they have become realities under application in foreign countries. And as human nature does not greatly change with country boundary lines, their duplication in the main could not be unexpected here.

Now for a bit of foreign railroad history: Railroads began to be constructed in Germany in 1835 and at the present about ninety per cent of the mileage is owned by the government. The railroads are controlled by a board of five members, known as the Railroad Board. Germany's might be considered as the highest type of government owned railroads, and in their controlling many admirable things are to be found, yet there are a very few matters in which they excel America. Their tracks, signals, stations, etc., are more of a high class, but employes are more numerous, more mechanical and largely less efficient. One authority sums it up thus: "The government officials of Germany show great expertness, but they have not been able to make the railways conform to the varying, practical needs of the public. Their theories are admirable, but their practices are not satisfactory. They meet the needs of commerce just as they drill soldiers, or provide pigeon holes for letters." Lost somewhere in such a make-up and practice is a manhood that could have developed into an aggressive traffic man under our competitive system.

The French railway system dates from 1842, in which year an act was passed for the establishment of grand lines of railway. The lines were to diverge from Paris, and the conception still governs. The cost of construction was to be divided between the general government, local districts and corporations operating them. The latter to contribute about one-half. It was further provided that all railroads should become public property about 1950. Mixed ownership soon proved unsatisfactory and the government for financial and political reasons eventually leased many of their lines to the corporations.

Austria owns more than a third of their mileage, while Hungarian and Belgium railroads are entirely owned by the state.

To present a complete comparison of American and foreign rates and wages would take up a great deal of space and time, and the end attained scarcely justify the means. The research into these features has shown much the same results and this broad statement will probably suffice, with the exception of Great Britain, where after allowances are made for the parcel freight, which is handled by express companies in this country, rates there are found to be about equal to those in America. In all the other countries rates are higher and salaries are lower than those in practice here.

Railroads are the largest single employers of common and professional labor, and their every interest becomes a personal one to the one man in ten, who enjoys paying positions in this country. The station agent has reason to be markedly concerned in the correct settlement of the "Government Ownership" proposition and the time is at hand when he should mentally forecast what his probable relationship would be, if such a measure were to be spread on our statutes. This country owes a large part of its prosperity and position among the family of nations to its transportation lines. Their surveyors penetrated the unknown, and their workmen followed over waste, river and mountain, into the undeveloped regions, when the profits from such a venture were altogether doubtful and at the very best many years away. Here and there towns and cities sprung up and, for the mutual welfare of railroad and citizen, official representatives known as agents were placed in charge. You in this convention realize how closely linked are the interests of the community and company, how the discovery and development of every local feature of note is watched and fostered in every laudable way. The people demand an agent through whom results can be secured, and the agent in turn must have a responsive source from which to obtain them without unrolling a lot of proverbial red tape.

To the employe unsympathetic and domineering discipline would form another serious objection to state control. This is exemplified by the way in which Italy handled a labor trouble in 1905. The employes through their leaders demanded better pay, some guarantee of future improvement, etc., and threatened to go on strike if the demands were not satisfied. The government was bound to take notice of this agitation, which might result in a strike, and its duty was clearly to overcome a strike or prevent it. They decided to interfere by a series of military mobilizations. This consisted in calling to the colors all railway employes liable to military service, but instead of incorporating them in their respective regiments they are kept at their respective posts and at their respective duties. They were there under military law, where refusal to obey has very serious results, and leaving one's post is equivalent to desertion.

Of the various causes for the necessity of the state operating the transportation lines, political, financial troubles and betterment of public conditions appear most prominent. Included in the latter are rebates and concessions to large shippers, unequal rates, and inefficient service.

Remedies for railroad evils are more numerous than cures for rheumatism, but are they practical enough to ever experiment with, to say nothing of accepting? It is the cure-all that should be avoided, and my feeble voice is raised in protest of a radical change in the ownership and control of the industries from which we receive our living. A number of evils have been corrected in the last twelve months to the mutual interest and good of commerce, citizenship, and railroad lines. In addition the public has a better conception of the resources and duties of transportation lines than ever before. They understand that there is a limit to possibilities where interference encroaches too far upon the revenue, and the great majority seem loath to see the government assume additional responsibilities and financial obligations.

The burthen of facts as deducted from actual practice, and conservative forcasts are decidedly unfavorable to the station agent receiving any benefit on the whole, through cessation of corporation ownership and control of railroads. His influence in a community would be lessened, ardor be dampened, advancement impaired, and usefulness to his company less effective through his becoming machine-like instead of aggressive as under the present competitive system.

TRAFFIC AND FINANCE.

Technical work pertaining to railroad work is to be taught in the night schools at Monterey, Mex.

The Lake Charles & Northern has purchased the Louisiana & Pacific for a consideration of $414,726.13. The transfer was made on March 4.

The roads entering Laredo, Tex., including the National Lines of Mexico, have decided to open a joint freight and passenger office in that city.

Harriman interests have secured control of the Central of Georgia. According to reported plans this road is to become a property of the Illinois Central.

A report from Corpus Christi, Tex., states that the Texas-Mexican road, extending from that point to Laredo, has passed into the hands of the St. Louis, Brownsville & Mexico.

The commercial travelers' associations of the country are using their influence at Washington to bring about a national 2-cent fare enactment, affecting every road in the country.

The Tabasco Fruit Co. has announced its intention of establishing a new line of steamships between Mexico points and Galveston, Tex., beginning May 2. Sailings are to be made monthly.

The official report of the Frisco System shows that that road has 1,495.21 miles of main line and 233.69 miles of side tracks in the State of Oklahoma, valued at, with buildings, etc., $10,209,379.

The supreme court of Montana, on February 25, declared valid the State law providing that employes must not be worked for more than sixteen hours without eight consecutive hours for rest.

Announcement is made that the Seaboard Air Line, beginning April 1, will act independently in the matter of party rates and will give a flat rate of 2 cents a mile for parties of ten or more persons.

The Pennsylvania Railroad reports that as a result of the recent decision of the court declaring the 2-cent per mile law invalid, there has been considerable increase in the sale of 2-cent mileage books.

The general passenger department of the Burlington is doing some fine advertising of the scenes along the Mississippi River by issuing attractive souvenir postal cards, showing the prettiest scenes along the road.

The Southern Pacific has put in a claim of $1,600,000 for expenditures in stopping the break in southern California of the Colorado River, which overflowed the Imperial Valley. President Roosevelt is favorably inclined to pay the claim.

The passenger department of the Northern Pacific has issued a handsome book, on the beauties and wonders of the Yellowstone Park, titled "The Land of Geysers." The descriptive matter and illustrations are interesting and instructive.

According to official figures the trade balance in favor of this country for the month of January amounted to $120,000,000, which amount is said to be unprecedented. This fact indicates that this is a great exporting country and that wealth is coming our way.

President Delano, of the Wabash, is quoted as saying: "There has been a good deal of hysteria manifested in the per diem discussion. The 50-cent rate was too high and the 25-cent rate is too low as a permanent rate. Probably the railroads will get together on a basis of 35 cents for the long pull."

The papers have been signed in the merger of the Mexican Central and the National Lines, effecting a consolidation, negotiations for which have been pending for several months. This action places practically every important railway system in that country under the control of the Mexican government.

Circulars issued by the car efficiency committee of the American Railway association show that 243 members, representing 1,601,355 cars, voted in favor of reduction from 50 cents to 25 cents a day, while 75 members, representing 589,635 cars, owned or controlled, voted against the proposition. Seventeen members, representing 30,147 cars, did not vote.

Beginning April 1, the following roads of the Southeastern Passenger Association agreed to sell interchangeable mileage books at 2 cents per mile: The Queen & Crescent; Atlanta, Birmingham & Atlantic; the Baltimore & Ohio; Georgia Southern and Florida; the Mobile & Ohio; the Southern, Illinois Central, Frisco, Charleston & Western Carolina, the New Orleans & Northwestern, Atlantic Coast Line and Seaboard Air Line.

At a weekly meeting of the Chicago Traffic Club, Mr. R. C. Richards, general claim agent of the Chicago & Northwestern, said: "Last year about $24,000,000 was paid by railroads of the country in settlement of freight loss and damage claims. This was 500 per cent more than was paid ten years ago by the transportation companies. During the same period the number of traffic managers of industrial concerns has increased by about the same percentage—I will not undertake to say what relation the one bears to the other."

The Interstate Commerce Commission has ruled canceling tariffs to the Northwest through Portland as a gateway. While this is simply exacting compliance with a rule made by the commission some time ago, requiring concurrence of all lines concerned in a through tariff, it has the effect of enabling the Northern Pacific, if so disposed, to close the Portland gateway to Seattle and the distant Northwest to all roads operating between Chicago and the Missouri River. It means that on all one-way business the railroads cannot sell tickets west to Granger and thence by the Oregon Short line to Huntington, Ore., and thence by the Oregon Navigation to Portland and thence to Seattle over the Northern Pacific. All this business must hereafter be routed by the way of the Twin Cities or over the Burlington by the way of Billings, Mont.

INDUSTRIAL OUTLOOK.

The opening of spring trade has been instrumental in reviving business throughout the country, in a commercial and industrial way. Conditions are much more hopeful now than they have been at any time since the flurry started last October. Railway shops are re-employing thousands of men that had been let out, and the manufacturing plants are doing a larger business than at any time since the financial trouble began.

A general manager of the Southwest is quoted as saying: "I do not feel as blue as Wall Street does. With good crops and good prices, which I figure on now, the territory covered by the states of Louisiana, Texas and Oklahoma will be affected the least of any section of the country. This is a growing and not a dying country." This is about the whole situation briefly stated. Prices have advanced on certain products, and orders for structural steel and machinery products have increased quite materially the last thirty days. The large copper plants and mines at Butte, Mont., have resumed operation with full force. On March 17 the Sharon Steel Hoop Company at Sharon, Pa., resumed operation, employing about 1,000 men. Structural steel mills in the neighborhood of Pittsburg last month booked orders for many thousands of tons of products. Carnegie's steel rail plant at Braddock, Pa., has resumed operation, which in turn caused many furnaces to be reopened. Many of the firebrick works in the Pittsburg field have resumed, and the lake shipments to the Northwest from the Erie, Pa., and Cleveland points commenced March 15 instead of April 1, as is customary. The Pennsylvania railroad has ordered fifty freight engines in service that had been housed for several months. The Jones & Laughlin Steel Company has resumed work on its new plant at Aliquippa, Pa., which will cost $15,000,000 when completed. Mills and foundries in smaller towns of the West and Southwest are opening up and doing fairly good business. A report from Pittsburg states that motive power officials of the various roads are holding a series of meetings with division officials with a view to adopting plans to resume repair work at the various shops. Owing to the retrenchment on all lines the number of cars and locomotives needing repairs is rapidly increasing and the working hours are to be increased.

A number of railroads have given orders for their shops to turn out more freight cars. Among these is the Chicago, Milwaukee & St. Paul, which has ordered the company's shops at Milwaukee to build 2,500 cars this season. The Georgia Railroad and the Atlanta & West Point have also instructed their shops to begin building new freight equipment.

If conditions continue to improve for the next 90 days as satisfactorily as they have the last 30 or 40 days there will be no grounds to fear bad effects from the coming political campaign. Confidence is being restored and money is again seeking employment, which, of course, means prosperity.

AMERICAN RAILWAY ENGINEERING AND MAINTENANCE OF WAY ASSOCIATION.

The American Railway Engineering and Maintenance of Way Association held their ninth annual convention at Chicago on March 17, 18 and 19. This had the largest attendance that ever participated in the convention. The papers presented and discussed were of great value to the engineering branch of the service. President A. W. Johnson of the Association presided at the meeting. The objects of the organization as stated by President Johnson are to originate ideas for safeguarding the interests of employers, employes, and the public in a manner as equitable as possible. The interests of all are common, and through our work as an organization representing all the important railroads of the country, and the co-operation of these railroads, it is hoped to attain results which will benefit the whole people.

The officers elected for the ensuing year are:

President—Walter G. Berg, vice-president Lehigh Valley railroad, New York.

Vice-president—L. C. Fritch, assistant to President Harahan of the Illinois Central railroad, Chicago.

Treasurer—W. S. Dawley, chief engineer Missouri and Northern Arkansas railroad, St. Louis.

Secretary—E. H. Fritch, Chicago.

Directors—Charles S. Churchill, chief engineer Norfolk and Western railroad, Roanoke, Va., and Edwin F. Wendt, assistant engineer Pittsburg and Lake Erie railroad, Pittsburg.

Better rails and masonry were among the leading topics that absorbed the most of the time and discussions of the convention. The exhibits made by the equipment companies were excellent and worthy of favorable comment. Many new devices were presented.

The association includes in its membership the chief executive and operating officers of 180,000 miles of railroad in the United States, and of railroads in England, Japan, China, Russia, Africa, Panama, Cuba, the Philippines, Australia, New Zealand, Central and South America, Canada and Old Mexico

MECHANICAL

NOTICE.—Communications are requested for publication relating to locomotive and car designs and equipment; also to special tools to facilitate shop work, or any subject tending to promote the efficiency of the Mechanical Department of railways. All practical men are earnestly requested to contribute early notices of official changes and additions of new equipment for the road and shop, both by purchase and construction.

Description of novel and meritorious devices recently designed that are of general interest will be published in our reading columns free of charge.

All communications relating to this department must be addressed to the Mechanical Editor, Railway Journal, 66 Sherman Street, Chicago, Ill.

THE GENERAL FOREMEN'S CONVENTION.

No doubt the general foremen, assistants, roundhouse and machine shop foremen are looking forward eagerly to the coming annual convention which is to be held at the Lexington hotel, Chicago, May 25 to 29. The program of this convention was published in the February issue of the RAILWAY JOURNAL. This promises to be a large convention.

As to the hotel accommodations, those who attended last year can verify the assertion that the management of the Lexington knows how to furnish excellent service in every detail. This year a table d'hote luncheon will be served each day of the convention for members at a charge of 50 cents each, and a la carte orders at reasonable rates. The rates for rooms are $1.00 per day and up; double, $1.50 per day and up, European plan, without bath; with bath, $2.00 per day and up; double, $3.00 per day and up. An excellent convention hall is to be provided free for the use of the members. Ample provisions will be made for the entertainment of the ladies and it is hoped every foreman will bring his wife and family.

METAL OF UNCERTAINTY.

Steel makers and metal workers of all kinds can tell you that the more one studies steel the more he will find to learn about it. Steel is a cranky metal—that is, it is uncertain. The best steel watch spring may snap at any time, being so easily influenced by climatic conditions and by its own composition. A maker of razors will turn out different products from the same piece of steel. There may be fifty of one kind and twenty-five of another, he never knows. Expert barbers state that there is not much difference even in the razors of different prices, as sometimes a "quarter razor" will do the same service as a $5.00 blade. In the manufactured products for machinery, the same uncertainty of steel is found. The taps for bolts vary. One may fit to an exact nicety while another acts stubborn, though both came from the same mill and die. A bolt where tension or strain is very great may withstand the force for years, and another one of the same material will fail soon after it is drawn up. The tool dresser in a shop never can tell just how his skilled work will stand the test. There is an uncertainty about steel that no metal worker has ever been able to fathom, or to overcome. It seems to be cranky and "has its notions."

FRISCO'S NEW PASSENGER LOCOMOTIVE.

The RAILWAY JOURNAL is indebted to the Baldwin Locomotive Works for the description and illustration of one of the ten passenger locomotives of the ten-wheeled type that they have just delivered to the Frisco System.

These are among the heaviest engines of this class thus far constructed by the builders, as they have a total weight of 194,450 pounds in working order. The cylinders are 23x26 inches and the driving wheels 69 inches in diameter, the resulting tractive force with a steam pressure of 200 pounds, being 33,900 pounds. As the weight on the driving-wheels is 141,050 pounds the factor of adhesion is 4.16.

The cylinders are arranged for double front rails, and the castings are bolted to the smoke box and to each other by a double row of 1¼ inch bolts. The valves are of the internal admission piston type, 13 inches in diameter, and work in bushings ⅝ inch thick. The by-pass valve consists of a plate which rests on a horizontal seat, and normally covers the openings leading to the live steam ports. When the throttle is open, the plate is held down by the boiler pressure which acts on its upper surface. Excessive pressure within the cylinders will cause the plate to lift from its seat, thus opening communication between the two live steam ports.

FRISCO PASSENGER ENGINE.

The center lines of the steam chests are placed 4½ inches outside the center lines of the cylinders, thus making possible a simple arrangement of Walschaerts valve gear with all moving parts in practically the same vertical plane. As the engine is equipped with inside admission valves, the eccentric cranks follow the pins. The cranks are of cast steel, and are secured to the main pins by a tapered fit and through bolt. A substantial steel casting, secured to each frame by three 1¼ inch bolts, supports, at each end, a combined link and reverse shaft bearing. The links are of the built up type, with cast steel side plates. Each radius rod is made in one piece, the jaw which embraces the hanger and link block being slotted out. The combining levers are placed back of the cross heads, and are coupled directly to the valve rods, which are supported in bearings bolted to the guide yoke. The valves are set with a constant lead of ¼ inch and a maximum travel of 6 inches. The steam lap is 1 inch and the exhaust clearance ⅛ inch.

The frames are of cast steel, 4½ inches wide, with double front rails of wrought iron. The lower rail is double keyed, while the top rail is hooked to the main frame, without keys. The pedestal binders are lugged and bolted to the pedestals.

The boiler is of the wagon top type with a wide firebox and sloping throat and back head. The center line is placed 9 feet 8 inches above the rail, and the depth of the throat from the underside of the barrel to the bottom of the mudring is 23⅛ inches. By spacing the second and third pairs of driving-wheels 9 feet apart, ample room is secured for a wide firebox with a moderate inclination of the grate. The mudring is supported on sliding shoes in front and a buckle plate at the rear.

The firebox is radially stayed, with two T irons supporting the front end of the crown. The roof and side sheets are in three pieces, with a double riveted lap seam on each side; while the crown and sides of the inside box are in one piece. The boiler barrel is built up of three rings, with the gusset in the middle. The longitudinal seams are butt-jointed and sextuple riveted, and are welded at each end. The seam on the dome ring is placed on the top center line and is welded throughout its entire length, with a heavy liner inside. The tender is furnished with a steel channel frame and water bottom tank. The trucks are of the arch bar type with cast steel bolsters, triple elliptic springs and steel tired wheels. The following are the principal dimensions, etc.:

Cylinders, in 23x26	Main journals, in....10x12
Boiler:	Other journals, in.....9x12
Diameter first ring, in...68	Front engine truck wheels:
Firebox, in.....67¼x101¾	Diameter, in.....33
Tubes, iron; No.....364	Journals, in.....6½x10
Gauge, No.....11	Wheel base:
Diameter, in.....2	Driving, ft.-in.....15-10
Length, ft.-in.....15-1½	Total engine, ft.-in...26x10
Heating surface:	Engine and tender, ft.-in. 57-10
Tubes, sq. ft.....2,867	Tender:
Firebox, sq. ft.....172	Water capacity, gals..6,000
Total, sq. ft.....3,039	Coal capacity, tons.....12
Grate area, sq. ft.....47.7	Journals, in.....5½x10
Valves:	Weights:
Type .....Piston	On drivers, lb.....141,050
Diameter, in.....13	On front truck, lb.. 53,400
Driving wheels:	Total engine, lb....194,450
Diameter, in.....69	

BRIQUETTES AS ENGINE FUEL.

The scarcity of fuel for locomotives, particularly in European countries, has forced railway managements to seek something cheaper and more plentiful. The government reports extensive use of briquettes on the roads in Europe, particularly in France and Belgium. The Northern Railway of France, which operates 2,354 miles of road, uses this class of fuel quite extensively. It produces a good heat and is considerably cheaper than coal. The Paris-Orleans road, which operates 4,467 miles of lines in France, uses annually 285,000 tons of briquettes, which form 28 per cent of its entire engine fuel. Nearly every line in that country uses this class of fuel.

In Belgium the state roads, which constitute 90 per cent of the roads in that country, use briquettes very largely also. In that country there are forty-eight plants engaged in the manufacture of various kinds of briquettes. The price per ton averages about $3.43. The heating value of briquettes depends entirely upon their component parts and the density of the bricks. Briquettes of 90 per cent coal mixed with tar or pitch have a heating power about 10 per cent greater than the coal from which they are made. The caloric value per briquette is estimated at 7,500 calories, or in English thermal units 30,000.

An effort was made in this country some years ago to introduce briquettes as fuel for stove and furnace fuel. They were made in sizes correspondingly with that of a hen's egg and composed of coal dust mixed with a fluid that was combustible, pressed firmly by machinery. They make a much better fuel than the coal dust itself and much more satisfactory to handle. In France the briquettes are made of pulverized coal held together by a matrix of 8 per cent of "brai" or coal tar derived from gas manufacture or coke production with recovery of by-products. The fine coal used is carefully composed of such proportions of fat and lean varieties as to give from 17 to 19 per cent of volatile matter and the requisite degree of firmness, cohesion, and percentage of ash. Anthracite dust is used to some extent in combination with fat bituminous varieties, so proportioned that the ash residue shall not exceed 8 or 9 per cent. Care is also taken to secure cinders which are but slightly fusible and do not form the refractory "clinkers" which are so difficult to manage in a locomotive fire box. Some of them are turned out flat in form with round edges and weighing from 6 to 10 pounds each.

FOREIGN FIELD FOR AMERICAN MATERIAL AND MACHINERY.

The Bureau of Manufactures at Washington, D. C., furnishes the following information:

Mario Rolla, Turin, Italy, desires to correspond with American manufacturers and exporters of office supplies and novelties, with a view to introducing the same into that market.

The Bureau of Manufactures is in receipt of a request from a merchant in the British Isles for the names of American manufacturers of collapsible metal tubes.

H. St. John Randell, Aliwal North, Cape Colony, advises the British and South African Export Gazette that he would like to get in touch with manufacturers of oilstones for sharpening edge tools.

One of the special agents of the Department of Commerce and Labor reports that a contracting builder in a South American city who uses a lathe of his own design desires lowest quotations on thin metal sheets.

An American consular officer in the Far East forwards a report touching on the possibility of selling American electric supplies in that territory. Further particulars may be obtained from the Bureau of Manufactures.

An American consul reports that the city council of the Latin American city in which he is located has secured a loan of sufficient money to build a sewerage system, the same to be constructed during the summer of 1908.

G. L. Bussanick & Co., Piezza del la Borsa 3, Trieste, Austria, advise the Manufacturers' Record that they desire to represent American manufacturers in that territory. They invite samples, prices, discounts, etc., from interested firms.

A report has been received from an American consul in Great Britain, stating that there is a demand in the city in which he is located for well-finished bolts and nuts. He forwards the name of a firm that is desirous of obtaining supplies.

A New York merchant writes to the Bureau of Manufactures that he would like to correspond with firms manufacturing oil engines, grinding machinery for making flour, pounding rice, etc., and accessory machines for use in a plant about to be established.

The Mexican Diario Oficial of January 7 contains the text of a contract entered into by Sr. Jose Sarinana, representing the Compañia del Ferrocarril Eléctrico de Lerdo a Torreon, for the construction of a line between the States of Durango and Coahuila.

An announcement appears in the issue of the Gaceta de Madrid of January 23, to the effect that the Compañia del Ferrocarril de Langreo y del Sindicato Verina Abono-Musel has been authorized to construct the necessary works for the production of electric power in the port of Musel, Spain.

An American consul in Southern Europe reports that there is a market in his district for the cheaper grades of hardware, such as scissors, locks, tools, small nuts and bolts, knives, tacks, screw, meat choppers, etc. He forwards the name of a dealer who has requested catalogues and price lists from American houses.

The Isthmian Canal Commission, Washington, D. C., announces that the proposals invited by Circular No. 420 for furnishing 4,500,000 barrels of Portland cement will be received at the office of the General Purchasing Officer of the Commission until April 13, 1908. The date originally set for the opening was March 12, 1908.

An American consular officer reports that a company has been organized in New York for the purpose of building, equipping, and running a railroad in the West Indies. The proposed road is to be standard gauge, and manufacturers of supplies for such a purpose may obtain the name of the company from the Bureau of Manufactures.

A report has been received from an American Consul in one of the cities of Western Europe to the effect that it has been decided to establish this year motor car service between two of the cities in his district. American manufacturers of motors should send their catalogues in triplicate to the consular officer in question, who will distribute them to the proper parties.

An American Consul in an European country reports that inquiry has been made at his office for apparatus for moving coal bunkers from and to the mouth of the pit, with an automatic arrangement for emptying them over the assorting rooms. It is stated that such an apparatus is in operation in the United States and it is desired to purchase similar machinery.

The municipality in one of the West Coast cities of South America has directed the electric tramway company to replace an existing bridge by a new structure, which will require considerable steel, but no public announcement has yet been made. Makers of bridge material should address an official of the company, whose name is filed with the Bureau of Manufactures.

An American Consul in Europe reports that he has received a special inquiry for the names of first-class manufacturers of machine tools, woodworking machinery, safes, cash boxes, and safety locks. The consul forwards the firm's catalogue to illustrate the special kind of machinery wanted, and he has marked the types of machinery for which he desires immediate quotations.

An American consular officer in Northern Europe reports that one of the leading firms in the city in which he is located has recently taken over a large automobile business and desires at the same time to handle other foreign goods, especially in the machinery line. The firm also requests that it be placed in communication with first-class manufacturers who are looking for an agent in that region.

Holzmuller & Schmidt, 36 Rue de Sevigne, Paris, France, desire to secure the agency of first-class American manufacturers as sole representatives for France, and will furnish first-class references. They are engaged in the general provision and drug line, also in close touch with the motor car and allied industries, and are open to other engagements. The firm has had long experience and established good connections in the trade.

An American consular officer in one of the cities of the West Indies reports that the Government Railway has recently acquired a large tract of land on which it is proposed to erect extensive shops in connection with the repairs of their engines and general equipment. The consul in question is of the opinion that a large amount of machinery will be required, and forwards the name of the official to whom American manufacturers should address their communications.

The Bureau of Manufacturers is in receipt of a letter from a New York exporter in which he expresses a desire to receive from manufacturers in the United States catalogues and prices, together with samples, if possible, of goods suitable for the South American trade, such as drugs, chemicals, resin, kerosene, dry goods, hardware, machinery, saws, tools, shoes, upper leather, pianos, clocks, jewelry, firearms and powder, scientific instruments, lard, bacon, butter, etc.

Bids will be received until April 6, 1908, by the Isthmian Canal Commission, Washington, D. C., for the supply of drawing paper, tracing cloth, note paper, envelopes, wrapping paper, bristol board, notebooks, letter files, pencils, pens, penholders, rubber erasers, planimeter, dividers, protractors, ranging poles, leveling rods, steel tapes, slide rules, transparent curves, beam compasses, magnifying glasses, plumb bobs, metal tubes for paper, canteens, water colors, paint brushes, ink, etc. (Circular No. 431.)

The Bureau of Manufactures is in receipt of a letter from a party in New York City who has for many years been acting as buyer of Chinese articles for export, and wishes to go to China again in that capacity as agent for American firms. He is also willing to act as manager of the firm's export business to China. He states that he has good connections with influential Chinese, and would thus be enabled to obtain orders from the Chinese Government for American firms. He also furnishes references.

The Monitorul Oficial, of Bucharest, announces the grant of privilege under the industrial law of Roumania to Mr. S. Stoian, the duty-free importation of machinery for establishing a cooperage at Braila. The equipment is to include one 5-horsepower electromotor, one 7½-horsepower double saw for making staves, circular saw of 80 cm., and various woodworking machines. The duty-free importation of the necessary machinery is also granted to Mr. A. Avramide for sawmill and timber works at Tulcea, Roumania.

One of the American consular officers in Asia reports that a firm there has applied to him for the names of American manufacturers of improved coal-mining machinery of all kinds, such as is used in mining, screening, and handling bituminous coal. Pneumatic coal cutters would be preferred to electric ones. The consular officer further states that if a complete equipment of American-made labor-saving coal-mining machinery can be put in quickly it will create a big trade for American machinery of this character.

Consul George H. Pickerell, of Para, Brazil, forwards an official notice inviting tenders for the leasing of the electric street railway and lighting system belonging to the State of Amazonas, Brazil. Bids for this proposition must be deposited with the treasurer of the State of Amazonas, Manaos, on or before April 1, 1908. The consul suggests that interested parties will save time by writing direct to the official named above or the American Consular agent at that place. Copy of the notice may be obtained from the Bureau of Manufactures.

The Bureau of Manufactures is in receipt of a communication from a young attorney with a varied business experience in the United States for the past fifteen years, advising that he would like to have an opportunity to represent American commercial interests in any part of Russia. He states that he has a thorough knowledge of the Russian language as well as Russian methods of doing business, and would be glad to make a permanent or temporary arrangement with some American concern to further its interests. He also furnishes references.

It is expected that a number of contracts will shortly be placed in New York City for material and equipment to be used in the construction of market and theater buildings and for the construction of waterworks and electric lighting plant in the city of Santo Domingo, Dominican Republic. An expenditure of about $600,000 will be made in the contemplated improvements. Interested parties should address Mr. John L. Clarkeson, 100 Broadway, New York City, or Mr. J. L. Blackwell, 27 William street, New York City, for further particulars in regard to the above.

The Bureau of Manufactures is in receipt of a communication from a New York man who states that he has had extensive experience in marketing American goods in Europe, and is at present in the employ of an European firm representing a number of American manufacturers. He speaks and writes, in addition to English, French and German, and furnishes references. He adds that it is his desire to form connections with some American factory, preferably in the machinery and hardware line, with a view to acting as their representative in the foreign field.

Consul Carl Bailey Hurst, of Plauen, notes that in behalf of the German Ministry of the Colonies, an official expert has just sailed for German Southwest Africa on an important mission. His duty will be to study on the spot the project of closing a valley some twenty-five miles southwest of Keetmanshoop to provide a reservoir capable of holding 2,000,000 cubic meters (70,629,000 cubic feet) of water. It is not altogether unlikely, in the event this engineering work is decided upon, that there may be an opportunity for American contractors to submit bids and eventually to participate in what promises to be an extensive and costly undertaking.

An American Consul in Latin America reports that the government of the country in which he is located has called for bids for supplies to be furnished the navy for a period of five years, covering the following articles: Machines, boilers and fittings, lubricants, candles, etc., hardware, paints, and naval articles, dry goods, furniture and tapestry, lamps and tinware, electrical supplies, printing, lithography, bookbinding, drawing and writing materials, chemicals and pharmaceutical preparations, and sanitary articles. The bids must meet the requirements of the regulations, a copy of which is on file in the Bureau of Manufactures. The bids are to be opened May 30, 1908.

Mr. A. Ravaioli, Commercial Delegate to the Royal Italian Embassy, Washington, D. C., writes the Bureau of Manufactures that the Executive Committee of the International Exposition, which will be held in Turin during the year 1911, has opened an international competition for the best fireproof material which will be used in covering the lumber and cloth employed in the buildings of the exhibition. The samples should be sent free of charge to the Direzione del Laboratorio di Docimastica del Regio Politecnico di Torino, Turin, Italy. They must be in sufficient quantity to cover at least 50 square meters of lumber and should reach Turin not later than the end of October, 1908. Several prizes in gold and silver medals and money will be awarded to the best qualities of material exhibited.

An American consul in Europe reports that a society recently organized in his district, whose members are expert technical men of all branches of trade, has just opened a special bureau of information with the view of promoting the importation of goods of foreign manufacture. This bureau desires to be furnished with catalogues and price lists of all kinds of goods of foreign make, so as to be able to put the local consumer in immediate direct communication with the manufacturers. The goods which are at present in demand are tools and machine tools for wood and metal, motors, shoes, shoemaking machinery, hair-cutting machines, steel machines for tanneries, compressors and pneumatic installations, ventilators, agricultural implements, gearings, cables, electrical machinery, armatures for boilers, pumps, belts for transmission, medicaments, etc. Catalogues should also be sent to the consul in question.

Special Agent Charles M. Pepper, writing from La Paz, Bolivia, February 8, on the railroad situation in Bolivia, says that the money has been provided to carry on the work already undertaken, and that a market for considerable railway material may be found in that country, where Americans engaged in the railway business are held in high regard. Mr. Pepper writes: "Purchases of railway material for Bolivia have not ceased, nor are they likely to cease. The conditions which obtain in other parts of the world are, of course, reflected in this section of South America, and since Bolivia's chief products for export are tin, silver, and copper, the fall in the price of those minerals affects both general business and the revenues of the Government. But, fortunately for the country, the funds for railway construction are not dependent on current resources. The Bolivian Government is now reaping the benefit of its action in dealing with responsible financial interests in the United States and American manufacturers of rails and material should have the advantage of a continuing market. The $12,000,000 of the Government, to which the Speyer-National City Bank syndicate contracted to add $15,000,000, making a total fund of $27,000,000, will all be spent in building railroad lines, as originally agreed upon."

MARKET FOR RAILWAY SUPPLIES IN CHINA.

Mr. William E. Curtis, correspondent of the Chicago Record-Herald in Washington, writes thus in a recent letter concerning railway prospects in China:

It is now possible to go from Peking to London by railroad in fifteen days—twelve days from Peking to Moscow, and three days from Moscow to London; and, when a cut-off now being constructed by the Chinese government from Peking northwestward is completed this time will be reduced to nine or ten days. At present a passenger who takes the train at Peking is required to go eastward to Harbin in northern Manchuria to connect with the Great Siberian Railroad, whose main line runs from Vladivostok to Moscow; then he has to turn westward and follow the other leg of an acute triangle to Irkutsk, the capital of Siberia. From Mukden there is another branch to Port Arthur, at the extreme point of the Liaotung peninsula, which is usually patronized by passengers to and from Japan. At least three days' time is lost by following the present circuitous route, and the Chinese government, recognizing its disadvantages, is pushing what is known as the Kalgan line with great energy, and hopes to have it completed through Mongolia to connect with the trans-Siberian Railroad at Khailar in the province of Tsitsihar within a few years. The town of Khailar is southeast of Lake Baikal, across which the trains of the Great Siberian Railroad are now transferred by a ferry.

In a personal exchange of correspondence between the RAILWAY JOURNAL and Mr. Curtis he emphasizes the prospect of great and immediate growth, and urges calling the attention of those who may wish to furnish supplies to the hopeful state of the Chinese market. There are numerous roads mentioned, and he continues substantially as follows:

The Peking-Kalgan R. R. have completed and in operation thirty-three miles, with eighty-two miles under construction. Claude W. Kinder, an Englishman, who has been many years in China, has general direction but the railway has been built by Chinese engineers with coolie labor. It is stated that in addition to the main purpose—a short line to Europe—the road will furnish interior transportation to market for provinces for centuries handling traffic by camel caravans. According to Mr. Curtis, Mr. William E. Gracey, Consul at Tsing-tau, considers the Imperial Railway of North China most important in the way of a big earner, at a cost of about $28,000 per mile for 832 miles on main line and branches.

From Peking south to Hankow, the metropolis of the Yang-tse, there runs the Peking-Hankow Railway, traversing the most important trade center of interior China. Its total length is 754 miles, the property of a Belgian syndicate. Thirty-three miles of branches connecting with coal mines and other resources complete the system. There is a daily schedule between Peking and Hankow of thirty-six hours. The Shan-Si Railroad, having one hundred and fifty-one miles of narrow gauge track, is a coal and coke railway. One of its termini is Tai-Yuan-fu, the capital of Shan-si. The Pien-Lo Railroad is another branch of the Peking-Hankow line, having seventy-five miles in operation, forty-five more under construction and two hundred more projected to Sian-fu. Its stockholders are very largely those of the Peking-Hankow Co.

From Tsing-Tau, the German colony, to Tsi-nan-fu, capital of the Province of Shantung, the service is through the Shantung Railway of two hundred and fifty miles main line and thirty miles of road to the coal mines at Po-Shan. It cost about $14,000,000 and is paying four per cent dividends. The business it handles is almost exclusively in the control of German merchants. There is a native syndicate owning the Tao-Ching Railway in Honan province ninety miles long, hauling coal chiefly from Twing-Hwa to Tao-Kou on the Ywei River, whence it goes by boats to Tien-Tsin.

Running nine miles from the East Gate of Tsi-nan-fu to the Hsiao-Hsing-ho canal for carrying freight for the Yellow River is the Tsi-nan-fu railway, a line of great importance commercially.

The foregoing are all railways north of the Yangste River, the boundary between north and south China.

The Shanghai-Woo-Sung Railway was torn up after construction by an English company by the Chinese because the rails interfered with the passage of the Fung-Shuy—the spirits of the dead—through the air. This extreme form of regulation passing away, the road was rebuilt and now carries passengers between Shanghai and Woo-sung, the anchorage for ocean vessels in the Yang-tse river.

The Shanghai-Nanking Railroad connects the cities of Shanghai and Nanking. It is capitalized at $17,500,000 at five per cent. The later Senator Brice, with an American organization, undertook the construction of the Canton-Hankow Railway to be nine hundred miles long, and make valuable connections with another system. It was rather poorly handled, falling through without much of a showing being made. The line that was built a very short portion was sold to natives who are making it pay a good profit.

Among other systems being developed by various interests are the Canton-Sams-Hui Railway, the Swatow-Chao-Chon-Fu Railroad, the Tonkin-Zunan Railway, the Hanoi-Zunan Railway, the Hanoi-Kwang-Chon Railroad, and the Shi-Hui-Zan-Lai-Shan Railway.

The Tonkin-Yunnan Railway is a French enterprise, an extension of a government railway in Tonkin. The road is two hundred and seventy-five miles in length and narrow gauge.

Following the suggestions of the author of the article, it seems an excellent opportunity now that railway construction is quiet in this country to seek our share in Chinese territory, and further make an effort to supply material and equipment to the larger lines now in operation. If China regards with the friendly consideration claimed the action of this country to assist in the maintenance of territorial integrity, her native enterprises can reciprocate in a material way and with the best results to their country and America.

MECHANICAL RULES AND MATHEMATICS.

Beginning with this issue, the RAILWAY JOURNAL will publish a series of mechanical mathematical rules and problems that will be of considerable benefit to the railway mechanics in various branches of the shops. If the reader will follow up these columns closely every issue he will gain information in them that is worth much more than the price of the paper. In this issue we will publish some of the rules for determining the working pressure to be allowed in new boilers, from "Lloyd's Register Boiler Rules," published in 1907-08, more of which are to be published from time to time:

CYLINDRICAL SHELLS OF IRON BOILERS.

The strength of circular shells of iron boilers to be calculated from the strength of the longitudinal joints by the following formula:

$$\frac{C \times T \times B}{D} = \text{working pressure.}$$

where C = coefficient as per following table.
T = thickness of plate in inches.
D = mean diameter of shell in inches.
B = percentage of strength of joint found as follows—the least percentage to be taken:

For plate at joint, $B = \frac{p - d}{p} \times 100.$

For rivets at joint, $B = \frac{n \times a}{p \times T} \times 100$; with iron rivets in iron plates with punched holes.

$$B = \frac{n \times a}{p \times T} \times 90;$$ with iron rivets in iron plates with drilled holes.

(In case of rivets being in double shear, 1.75 a is to be used instead of a.)

Where p = pitch of rivets.
d = diameter of rivets.
a = sectional area of rivets.
n = number of rows of rivets.

MEM.—In any case where the strength of the longitudinal joint is satisfactorily shown by experiment to be greater than given by this formula, the actual strength may be taken in the calculation.

TABLE OF COEFFICIENTS.—IRON BOILERS.

DESCRIPTION OF LONGITUDINAL JOINT	For Plates ½ inch thick and under	For Plates ¾ inch and above ½ inch	For Plates above ¾ inch thick
Lap joint, punched holes	155	165	170
Lap joint, drilled holes	170	180	190
Double butt-strap joint, punched holes	170	180	190
Double butt-strap joint, drilled holes	180	190	200

NOTE.—The inside butt strap to be at least three-fourths of the strength of the longitudinal joint.

CYLINDRICAL SHELLS OF STEEL BOILERS.

The strength of cylindrical shells of steel boilers is to be calculated from the following formula:

$$\frac{C \times (T - 2) \times B}{D} = \text{working pressure in pounds per square inch.}$$

Where D = mean diameter of shell in inches.
T = thickness of plate in sixteenths of an inch.
C = 22 when the longitudinal seams are fitted with double butt straps of equal width.
C = 21.55 when they are fitted with double butt straps of unequal width, only covering on one side the reduced section of plate at the outer lines of rivets.
C = 20.5 when the longitudinal seams are lap joints.

If the minimum tensile strength of shell plates is other than 28 tons per square inch, these values of C should be correspondingly modified.

B = the least percentage strength of longitudinal joint, found as follows:

For plate at joint, $B = \frac{p - d}{p} \times 100.$

For rivets at joint, $B = \frac{n \times a}{p \times t} \times 85$ where steel rivets are used.

$B = \frac{n \times a}{p \times t} \times 70$ where iron rivets are used.

Where p = pitch of rivets in inches.
t = thickness of plate in inches.
d = diameter of rivet holes in inches.
n = number of rivets used per pitch in the longitudinal joint.
a = sectional area of rivet in square inches.

(In case of rivets in double shear 1.75 a is to be used instead of a.)

NOTE.—The inside butt strap to be at least three-fourths of the strength of the longitudinal joint.

NOTE.—For the shell plates of superheaters or steam chests enclosed in the up-takes or exposed to the direct action of the flame, the coefficients should be two-thirds of those given above.

Proper deductions are to be made for openings in shell.

All manholes in circular shells to be stiffened with compensating rings.

The shell plates under domes in boilers so fitted to be stayed from the top of the dome or otherwise stiffened.

STAYS.

The strength of stays supporting flat surfaces is to be calculated from the smallest part of the stay or fastening, and the strain upon them is not to exceed the following limits, namely:

IRON STAYS.

For stays not exceeding 1½ inches smallest diameter, and for all stays which are welded, 6,000 pounds per square inch; for unwelded stays above 1½ inches smallest diameter, 7,500 pounds per square inch.

STEEL STAYS.

For screw stays not exceeding 1½ inches smallest diameter, 8,000 pounds per square inch; for screw stays above 1½ inches smallest diameter, 9,000 pounds per square inch. For other stays not exceeding 1½ inches smallest diameter, 9,000 pounds per square inch, and for stays exceeding 1½ inches smallest diameter, 10,400 pounds per square inch. No steel stays are to be welded.

STAY TUBES.

The stress is not to exceed 7,500 pounds per square inch.

SCARCITY OF TIMBER.

For several months past the RAILWAY JOURNAL has been pointing out the rapidly increasing scarcity of timber in this and other countries and the necessity of economizing in its use. An illustration of what is being experienced in the lumber trade in other countries is found in the report that a corporation in Australia has contracted with the Russian government to take out 30,000,000 feet of timber a year from the forests of Siberia, 900 miles inland from Vladivostok, to be delivered in Melbourne, Australia, about 8,000 miles. Owing to the rigid winters in Siberia this timber has to be taken from the forests during the months of July, August and September. The logs are transported to their destination in Australia and sawed into lumber for building purposes, etc. According to the late bulletin of the United States Forest Service, the prices of lumber at wholesale have increased from 35 to 131 per cent since 1886; that is, on common lumber, such as white ash, white pine, yellow poplar, redwood, hickory, etc.

CONCERNING BELLS.

At the Jamestown Exposition we were induced by an acquaintance to go and listen to a chime of sixteen bells which were played by an electrically governed keyboard. It was the latter mechanism which interested our friend, but it was the bells which interested us; for the reason that our attention had been recently called to the general unsatisfactory quality of the ordinary locomotive bell—and in fact the bell used for all sorts of

ordinary purposes, particularly the street car gong whose discordant clamor adds so much to the annoyance of street noises. We were immediately attracted by the sweet, clear, true tones of these bells, as they rang in unison or through all the intervals of two musical octaves. Naturally the newspaper spirit awoke, and we began to ask questions. We were given a great deal of information which interested us very much indeed at the time, and which we fully intended to make use of in an article for several of the trade papers, to whose readers the information obtained would be of value. But "history is made quickly" in these days, and the matter was pushed aside for the time being.

The whole subject was revived to memory on a recent visit to Canada, extending from the Michigan line up to Manitoba. Our business was, for the most part, with locomotive engineers, and we heard incidentally many complain that they had come in from a run with a cracked, or even completely broken bell, owing to the extreme cold. We then remembered our talk with the exhibitor of Shelby Seamless Steel Bells, and recounted to several interested engineers something of all we had learned of this new type of bell. That it is *formed*, not cast, from a solid steel tube, without weld or joint and therefore variations of temperature cannot effect it, as in the case of a cast bell. That it is tuned to any desired note by being turned on a lathe (on the

Seamless Steel Bell.

same principle than an organ reed is filed to note), until the bell is in accord with a certain note struck on a piano.

We certainly interested several engineers in this bell, which will not crack, and has a clear, true tone. Every engineer is proud of his engine, and wants everything the best, and is therefore considerably disgusted when his coming is announced by the discordant jangle of a cracked or "flat" toned bell. Every man to whom we talked wanted the name of the bell "warranted not to crack and true in tone," and anxiously asked the price. We did not remember anything about that, except that they were far cheaper than the old type of cast bell. We promised to look into the matter on our return, and to let each man know. We find that too much of an undertaking, so we are doing next best—writing this little *resume* of our recollections, and thus telling our friends something of all they want to know.

MECHANICAL NOTES.

The Santa Fe is contemplating erecting a modern round house at Wichita, Kan.

The Marshall Car Wheel Co., of Marshall, Tex., is making improvements to its shops at that point.

The Rock Island is equipping several of its locomotives for use in Oklahoma with burners for oil fuel.

The Baltimore & Ohio has recalled nearly all the men who were suspended from the shops and roundhouses at Cumberland about the first of the year.

The New York Central has contracted for a new engine house at Buffalo, also for a 19-stall roundhouse at Rensselaer, N. Y. This company has been in the market for considerable new shop machinery.

The Santa Fe will change its division point at Woodward, Okla., to Canadian, Tex., and division roundhouse, terminals, etc., will be established at Wynoka, Okla. The company's shops at Temple, Tex., have taken on more employes and are turning out much more work.

According to statements made by General Manager Thorne of the Texas & Pacific, that road increased its equipment last year by the purchase of 3,000 boxcars, ten coaches and forty engines. They also built new equipment, so they increased their motive power by fifty-one engines.

The Rock Island is completing extensive division shops and a roundhouse at El Reno, Okla., where headquarters for the southwest system are being established. Terminals are being enlarged, and a large office building is among the plans for further improvements at that point.

Early last month the Northern Pacific suffered a loss by fire of its roundhouse at Jamestown, N. D., also two locomotives, wrecking car, and machinery. The loss is estimated at about $125,000. Work has commenced on a new roundhouse which is to be equipped with modern machinery.

Is there not some mechanical genius who can devise a traveling crane that can pass another one. The crane is an indispensible factor in a large shop, but two cranes on the same track get in one another's way, hence the idea of a way getting around the difficulty. Here is an opportunity for inventive genius.

The Practical Carpenter gives the following as a method to keep tools from rusting: Take two ounces of tallow and one ounce of resin; melt together and strain, while hot, to remove the specks which are in the resin. Apply a slight coat on the tools with a brush and it will keep off the rust for any length of time.

The following is considered a good recipe for cleaning rusty pieces of steel: Put the pieces in a solution of chlorate of tin, not too strong, or it will attack the metal, and let them stay there about 24 hours or less. Take the pieces from the bath, wash them in water, then in ammonia, and then dry them quickly. They will have an appearance almost of silver, but will take the natural color by rubbing them.

The Pioneer Mail of Allahabad, British India, states that the development of the manganese industry in the Central Provinces has been very rapid, and with greater railway facilities, even better results would have been obtained. The Balaghat district has been particularly to the fore, and about 21,000 tons were sent from Balaghat station on the railway between Jubbulpore and Gondia in 1904-5. The following year the quantity had risen to over 60,300 tons, and since then the tonnage has continued to increase.

A report to the Manchester (Eng.) Chamber of Commerce states that a good deal of depression prevails in the Scotch steel trade, and that production, which in normal times is estimated at a rate, roundly, of 1,000,000 tons per annum, has for over a month past not exceeded a rate of 600,000 tons per annum. Rolling machinery was shut down in the closing quarter of 1907, and in the month of February it is reported that in no case was the whole plant running full time, while at four leading establishments not a mill was turned, and several thousand hands were consequently idle. From the top level of the autumn, prices of all sections of material have been reduced by from $5 to $6.50 a ton.

NEW CARS AND LOCOMOTIVES.

The Grand Trunk is figuring on new passenger equipment.

The Northern Pacific has plans for 40 passenger coaches to be built this year.

The Colorado & Southern will soon let contracts for 100 narrow-gauge box cars and gondolas.

The Georgia Railroad is to build a number of freight cars at the company's shop at Augusta, Ga.

The Atlanta & West Point will construct freight cars at the company's shops at Montgomery, Ala.

The Baldwin Locomotive Works received an order for six locomotives from the Pittsburg, Shawmut & Northern.

The Canadian Pacific has placed orders for 141 steel ore cars with the Dominion Car and Foundry Company, of Montreal.

The Canada Car Company is building 50 Hart convertible ballast cars for the J. D. McArthur Company, of Winnipeg, Man.

The Norfolk & Southern has plans for a car and locomotive repair plant to be built at Chocowinity, N. C., at a cost of $300,000.

The Cananea, Rio Yaqui & Pacific has received four locomotives from the Brooks branch of the American Locomotive Company.

The shops of the Chicago, Milwaukee & St. Paul, at Milwaukee, are to soon commence building 2,500 freight equipment, also 30 switch engines.

AMONG THE SUPPLY FIRMS.

Mr. Gorham C. Parker has been made sales manager of the Wm. J. Smith Company, of New Haven, Conn.

E. Metz, Jr., has been appointed in charge of the Pittsburg Automatic Vise and Tool Company's office in the Dwight Building, at Kansas City, Mo.

Messrs. John A. Panter and Payne Jennings have organized a company known as the Panter, Jennings & Co., at 1202 Great Northern Building, Chicago, to deal in railway supplies, mill supplies, etc.

The Southern Railway Supply Company has been organized in St. Louis and has purchased the business of the H. F. Vogel Contracting and Supply Company, of that city. Joseph A. Buse is president.

The H. W. Johns-Manville Company has been sending out a booklet illustrating the applications of their J-M asbestos roofings and asbestoside, which have become popular products in their fields for construction.

The Superior Car Lighting and Equipment Company has been incorporated at St. Louis to manufacture and deal in railway supplies, with the following incorporators: W. S. Seibert, Fred Nussbaum and E. T. Ford.

The National Railway Equipment Company, of St. Louis, Mo., has been incorporated with a capital stock of $50,000. The incorporators are R. H. Kern, Frank R. Blunt, J. R. Nichols, D. T. Mason and Robert H. Kern, Jr.

At a meeting of the creditors' committee of the Westinghouse Machine Company, which has been in the hands of a receiver, it was decided to discharge the receiver and accept bonds for their indebtedness and extend the time on all accounts three years.

The Federal Signal Company, of Albany, N. Y., succeeds to the name and business of the Federal Railway Signal Company. The officers are: A. H. Renshaw, president; John T. Cade, vice-president; Eugene Seitz, vice-president and Treasurer, and Frederic Pruyn, secretary.

The Westinghouse Air Brake Company has issued a number of valuable books which are of special interest to railway employes, among which are "The Effect of Brakebeam Hanging upon Brake Efficiency," instruction pamphlets on the "Type L Triple Valve" and the "Type M Triple Valve."

The Monthly Official Railway List of Chicago, popularly known as the "Red List," has changed its form of binding, which adds to convenience as a handy book of reference. President W. E. Magraw, of the company, deserves credit for the success he has achieved in making this book so indispensable to railway officials.

BOILER CONSTRUCTION.

All boilermakers who wish to get the best work on locomotive boiler construction can secure through the Railway Journal a copy of Frank B. Kleinhans' new book on "Boiler Construction," a book of over 430 pages, handsomely illustrated and cloth-bound. The book contains 334 clear cuts and five pages of large plates, illustrating different forms of locomotive boilers. There are 75 pages devoted to laying out and about 50 pages devoted to tables, rules and other valuable data. We have arranged to secure this book for our readers at cost—$3.00—which will be sent postage paid. It is the most complete and up-to-date work of its kind we have been able to secure for our readers, and we think it is about what every aspiring boilermaker needs. A boilermaker of forty years' experience writes: "I would not take $10 for my copy if I could not replace it." We also take orders for the

WALSCHAERT LOCOMOTIVE VALVE GEAR.

This valuable book of 150 pages, finely illustrated, should be in the hands of every railway engineer, fireman and mechanic as well as foreman. It is devoted exclusively to the above system of valve motion. The book contains information that is put forth so simple that anyone can easily understand it. Its illustrations and diagrams alone are worth more than the price, $1.50.

CONSTRUCTION AND IMPROVEMENTS.

The Southern Pacific has plans for building a 12-mile branch from Lake Arthur to Gueydan, La.

The Pennsylvania has located a line 30 miles long between Smith's Ferry, Pa., and Minerva, O.

The Canadian Pacific is doing extensive double track work between Smith Falls and Finch, Ont.

The Puget Sound & Baker River has completed 20 miles of track between Hamilton and Burlington, Wash.

The Roscoe, Snyder & Pacific is now operating to Hermleigh, Tex., and is to be completed to Snyder, Tex., by May 1.

The Kansas City Southern is relaying its tracks between Texarkana, Tex., and Shreveport, La., with 85-pound rails.

The Manistee & Northeastern is making surveys for extensive construction work, with the view of reaching Alpena, Mich.

The Norfolk & Western proposes to spend about $2,000,000 on double tracking and improving the Pocahontas division this year.

An effort is being made by the business men of Little Rock, Ark., to get the Missouri & North Arkansas to extend to that city, 50 miles.

The Bainbridge Northeastern has been planned to build between Pelham and Bainbridge, Ga., 20 miles. E. Swindell, of Bainbridge, is president.

Reports from Houston, Tex., state that John W. Gates is in Port Arthur promoting a line between that place and Houston, about 100 miles.

The Oklahoma Central has been completed between Purcell and Chickasha, Okla., giving the road now 13 miles from Lehigh to Chickasha.

The Kansas & Texas is being surveyed between Garden City, Kan., and Amarillo, Tex., 240 miles. J. L. Gilson, of Guymon, Okla., is president.

The Mexican Railway is now receiving 3,000 tons of new rails for reconstructing portions of the line. This road is experimenting with steel ties.

W. H. Patterson, of Atlanta, Ga., is president of the Greenville & Knoxville, which is being built between Greenville and River Falls, S. C., 26 miles.

The Wichita Falls & Southern is building 14 miles of extension between Olney and Belknap, Tex. J. A. Kemp, of Wichita Falls, Tex., is president.

A Rock Island official is quoted as saying that the company will expend about $1,000,000 in improving its track in Oklahoma and Arkansas this year.

A report from Tahlequah, Okla., states a construction force is on the ground there to build 43 miles of the St. Louis & Oklahoma Southern, a new line.

The Alabama Central proposes to make a 25 mile extension soon and eventually extend to Decatur, Ala. Mr. Albert Russell, of Jasper, Ala., is president.

The Illinois Central has completed a branch from Baton Rouge, La., to Covington, La., 66 miles. The road is known as the Baton Rouge, Hammond & Eastern.

The Eagle Valley is a new line being built between Baker City and Richland, Ore., 52 miles, the president of which is W. L. Vinson, of Baker City, Ore.

Surveys have been made for the Oregon & Washington, which is to extend from Portland to Seattle, 182 miles. J. D. Farrel, of Seattle, Wash., is general manager.

The citizens of Shreveport and Leesville, La., are promoting the Alexandria, Leesville, Lufkin & Western, and preliminary surveys are being made for the road.

The Oregon Railroad & Navigation Co. has about completed a branch between Riparia, Wash., and Lewiston, Idaho, 72 miles. The road follows the Snake River Valley.

The Bristol & Kingsport is a proposed road that has been surveyed between Bristol, Tenn., and Kingsport, Va., 25 miles. John I. Cox, of Bristol, Tenn., is president.

Construction work has begun on the Ballinger & Abilene, which is to be built between Ballinger and Abilene, Tex., 53 miles. C. A. Doose, of Ballinger, is president.

The Great Southern has taken legal steps towards extending the line from Dufur, Ore., to Tygh, Ore., 25 miles. J. H. Heinrich, of The Dalles, Ore., is general manager.

F. H. Brewster, of Cherryvale, Kans., and others, are promoting the Cherryvale, Oklahoma & Texas, which they propose to build from Cherryvale to some point in Texas.

Construction work on the South & Western is in progress between Johnson City, Tenn., and Bull Run, Va., 72 miles. M. J. Caples, of Johnson City, is general manager.

The Beaumont & Great Northern is building from Onalaska to Livingston, Tex., 17 miles, and track laying is in progress. C. J. Rogan, of Onalaska, Tex., is vice-president.

The Mexican Central has treated its roadbed with oil between Torreon and Jimulco, and proposes to use the same method on other divisions for the purpose of laying the dust.

An effort is being made to get the Wabash, Chester & Western to extend from Mt. Vernon to Terre Haute, Ind., 125 miles, and to some point in Missouri from Menard, Ill.

The West Texas Construction Co. is making preparations at Stanton, Tex., for building the West Texas & Northern, which is to be constructed from Stanton to Amarillo, Tex.

A report from Winnipeg states that the Great Northern has engineers in the field locating a line between Brandon, Man., and Alberta, Calgary, with headquarters at Medicine Hat.

The Rock Island is laying steel on its extension between Amarillo, Tex., and Tucumcari, N. M. A portion of the extension is to be ready for operation by about the middle of May.

The Reading, Lancaster & Southern is being surveyed from Reading, Pa., to Baltimore, Md. Contracts have been let for portions of the grading. The president is I. S. Spatz, of Molinton, Pa.

The Evansville Terminal has been incorporated to build a line from Evansville to Newburg, Ind., 10 miles. Among those interested are W. H. McCurdy, J. V. Rush and A. P. Lahr, of Evansville.

The Harriman lines are making plans for extension expenditures at Seattle, Wash., to which city a road is to be constructed from Portland, Ore. Valuable lands have been secured at Seattle for terminals, etc.

The Supreme Court of Washington has given the North Coast permission to condemn the right away across the Northern Pacific at Union Gap, Washington. Robt. Strahorn, of Spokane, Wash., is president.

The Natchez & Eastern, which has about 15 miles of track completed, is building between Natchez and Brookhaven, Miss., 66 miles. A portion of the grades are completed F. L. Peck, of Scranton, Pa., is president.

Construction work has begun on the new line known as the Pittsburg, Binghamton & Eastern, which proposes to build from Binghamton, N. Y., to Clearfield, Pa., 225 miles H. A. Schwancke, of Canton, Pa., is chief engineer.

The Los Angeles Harbor Railroad has been chartered in the state of California to construct a line from Los Angeles to tidewater, about 25 miles. A. C. Bird, formerly of the Gould lines, Compton, Cal., is the promotor of this line.

It is reported that the Pecos, Balmorchea & S. W., which proposes to build in the Toyah Valley in Texas, is a Texas & Pacific branch line. The road is to be about 45 miles long. Construction is to begin at Toyah, Tex., at an early date.

The Wetsern Pacific, which is building between Ogden, Utah, and San Farncisco, 929 miles, has 620 miles graded, of which 275 miles are laid with steel. There are to be 43 tunnels, of which the longest are 7,306 feet, 6,006 feet and one 5,664 feet.

W. H. Marsh, of El Paso, Tex., is president of the Colorado, Columbia & Mexican, which is proposed to be built from Columbus to Farmington, N. M. Surveys have been made of a portion of the route and construction is to begin this coming summer.

The Missouri, Oklahoma & Gulf is now completed to Lamar, Okla., and work is under way for the extension to the Canadian River, after which the road is to be built to the Texas line at the Red River. C. S. Young is engineer in charge of construction.

The Chicago, Milwaukee & St. Paul has its Pacific coast extension opened as far west as Terry, Mont., where the road crosses the Yellowstone River, about 290 miles west of the Missouri River. By the middle of next month the line is to be completed as far west as Butte, Mont.

Report from Saltillo, Mex., states that construction work is soon to begin on the Zacatecas & Orient, which is to be built from Camancho to Gomez Farias via Mazapil, about 100 miles, and eventually to Linares. Particulars can be secured by addressing U. S. Consul T. W. Voetter at Saltillo, Mex.

President Stilwell, of the K. C., M. & Orient, states steel has been secured for the 65 miles gap between Benjamin, Tex., and the Red River. This will give a completed line from Wichita, Kans., to Sweetwater, Tex., about 450 miles. Grading is being done between Emporia, Kans., and Wichita.

The Houston, Sabine & Red River is being promoted by Edward Kennedy, who is vice-president, office at Houston, Tex. This proposed road is to extend from a point near Houston to McAlester, Okla. Grading has begun near Houston. It is reported that Massachusetts capitalists are financing the road.

On March 17 the last spike was driven on the Spokane, Portland & Seattle road at Cheridan Point, thus completing the line between Pasco and Vancouver, Wash., 221 miles. This is a property of the Northern Pacific and follows the north bank of the Columbia River. Train service will soon be operated into Portland, Ore.

The following report was sent out from McKinney, Tex., March 3: M. J. Healy, promoter of the proposed Texas, New Mexico & Pacific Railway from McKinney through Denton and West Texas, is in receipt of a communication from T. R. Hasley, of Iowa Falls, Ia., for years connected with the G. N. & N. P. Railway, who was here a few weeks ago looking over the Western railroad's prospects, stating that he and his associates had purchased two steam shovels, three locomotives, sixty miles of steel rails and other necessary equipment to be used in building the proposed road, provided a satisfactory contract can be made with the people of McKinney and Denton.

The U. S. Consul report states that there is considerable railway construction in Mexico. It is anticipated that in July will be formally opened the extension of the Mexican Central Guadalajara line to the Pacific Coast harbor of Manzanillo, where improvements involving large expenditures have been made in port works. When finished this line will provide a needed outlet for western interior points to the Pacific Ocean, thereby opening up channels of trade with the Pacific ports of the United States, British Columbia, Central and South America, and the Far East and rendering the importation of foreign products less expensive. A considerable work has already been done from the Guadalajara end of the Southern Pacific West Coast trunk line, which is being built from the terminus of Guaymas to the city of Guadalajara, Mexico, under the name of Cananea, Rio Yaqui & Pacific Railway. Work is also progressing on the line at Mazatlan. These railways will contribute much to the development of the west coast of Mexico, and will greatly enhance the importance of Guadalajara as a distributing center for the interior western points.

CONSUMPTION OF CROSS-TIES IN 1906.

The statements in this report are based on the number of ties bought rather than on the number actually used. For all practical purposes, however, the two are identical, because the purchases in twelve months are an accurate index of consumption for a corresponding period.

The purchases of cross-ties by steam and street railroads of the United States during the year 1906 amounted to 102,834,042, valued at $48,819,124, an average of 47 cents per tie. This value represents the cost to the purchaser at the point of purchase. In many, perhaps most, cases this point of purchase is the point of production, near the road's right of way; but in others, and this is particularly true of sawed pine ties, long shipments are involved and the point of purchase is a local distributing market, distant from the source of supply. The average value of 47 cents, therefore, probably represents a higher rate than that received by the producer. The steam railroads purchased 93,477,625 ties, or about nine-tenths of the whole number.

Street railways as a rule use a smaller, lighter tie than that required by the steam roads, so their material is less difficult to obtain.

Oak, the chief wood used for ties, furnishes more, than 44 per cent, nearly one-half of the whole number, while the southern pines, which rank second, contribute about one-sixth. Douglas fir and cedar, the next two with approximately equal quantities, supply less than one-fifteenth apiece. Chestnut, cypress, western pine, tamarack, hemlock and redwood are all of importance, but no one of them furnishes more than a small proportion.

Oak and southern pine stand highest in both total and average value, the average value of each is 51 cents. Chestnut ranks next, followed by cedar. Hemlock at 28 cents is the cheapest tie reported.

More than three-fourths of all ties are hewed; and with every wood from which ties are made, except Douglas fir and western pine, the number of hewed ties is greater than the number sawed. About ten times as many Douglas fir ties are sawed as are hewed. Of the oak ties a little over one-sixth and of the southern pine ties less than one-third are sawed. In general, when lumber has a relatively low value, the proportion of sawed ties increases, because the market for ties is always active, while that for lumber is frequently sluggish. All western species are affected by this condition, for stumpage is abundant and its value relatively low.

About one-third of the ties used by street railroads are sawed, but not quite one-fourth of those used by steam roads. The greater proportion of sawed ties used by street lines is probably due to the fact that much of the trackage within city limits is on paved streets, where sawed ties are more satisfactory on account of their regular shape.

The average price of the sawed tie is, as a rule, higher than that of the hewed one, despite the fact that the hewed tie is more durable. This peculiar condition of an inferior commodity bringing a higher price is brought about by the difference in market conditions. Sawed ties, though admittedly less durable, represent a potential value equivalent to the amount of lumber into which they could be cut. Hewed ties, on the other hand, complete only with posts or fuel wood, both of which are of lower value.

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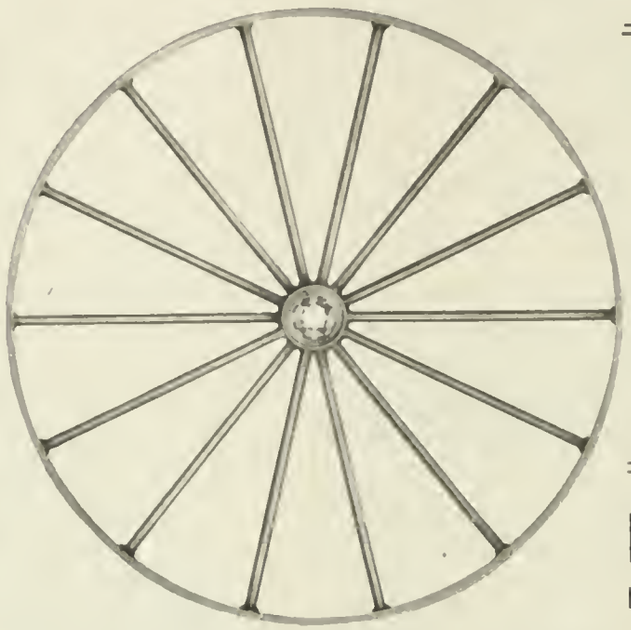

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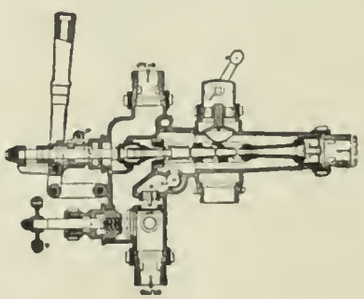

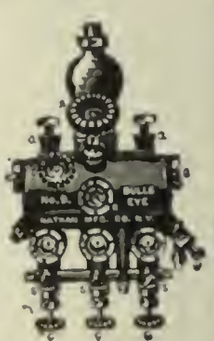

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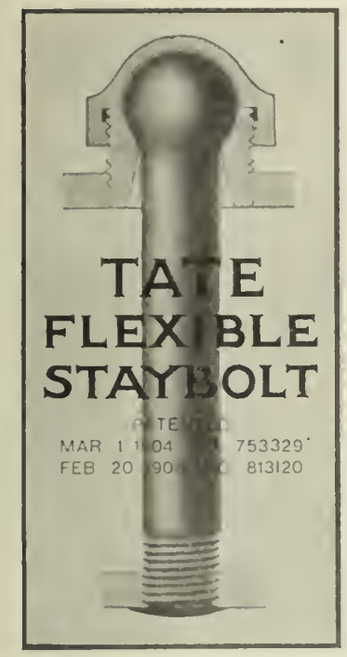

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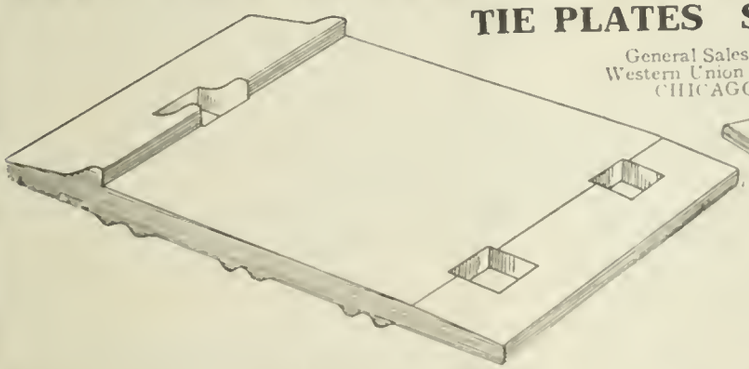

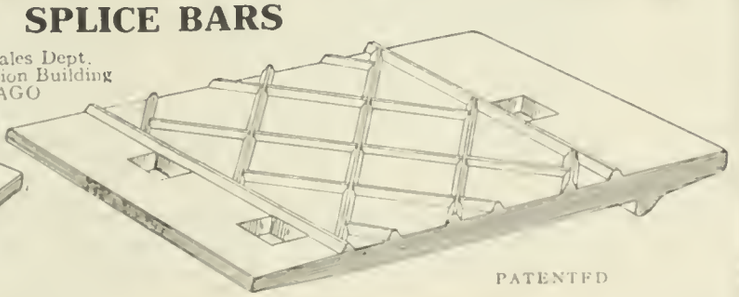

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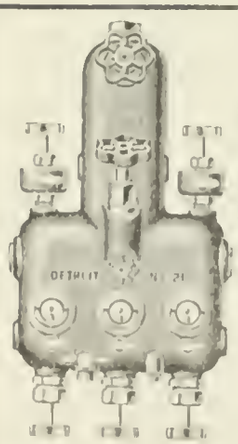

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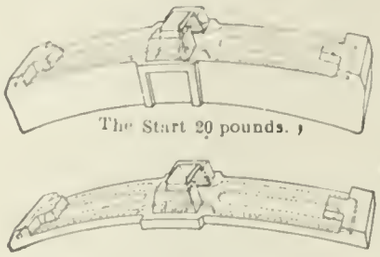

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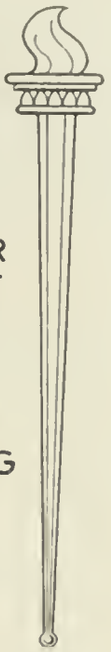

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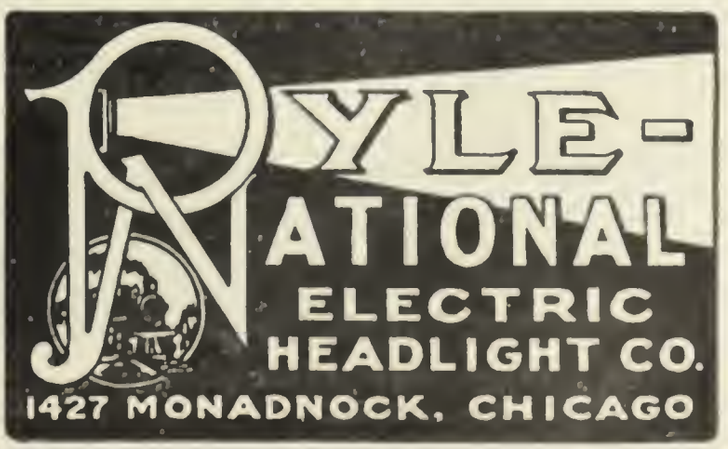

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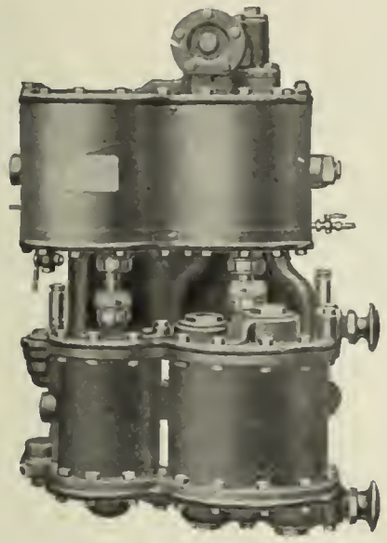

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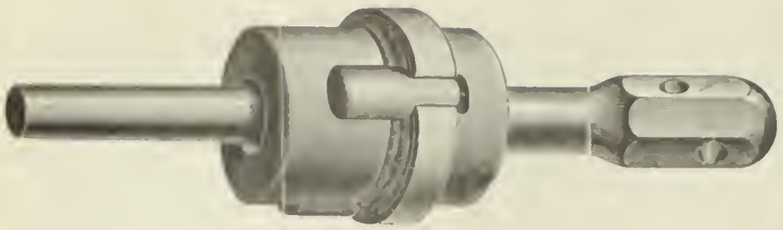

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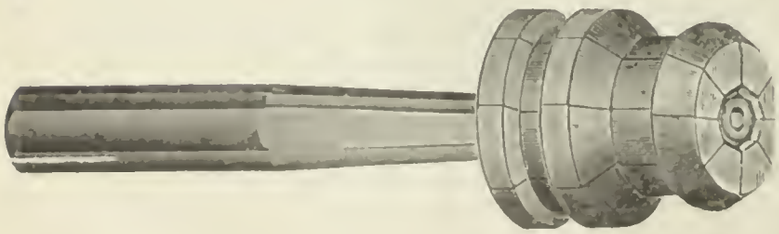

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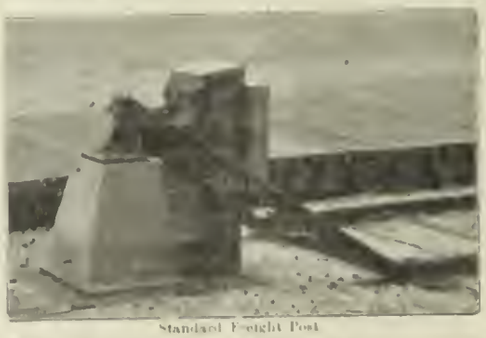

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Entered at Second-Class Matter October 22, 1906, at the Post Office at Chicago, Illinois, under Act of March 3, 1879.

W. E. FAITHORN . . . Business Manager
E. C. COOK . . . Editor
W. B. BARR . . . Associate Editor

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OPPOSES CONCENTRATION.

To a correspondent of the RAILWAY JOURNAL a railway director writes as follows:

I cannot believe that it is safe to go on concentrating power in Washington. If Home Rule is a good thing in Europe it is a good thing here. I do not see that railroads having federal charters are any happier than anybody else.

I am glad to note the ———— and others have backed up on the rule in classification regarding non-liability for damage of goods unless sent at carrier's risk at 20 per cent advance in regular rates. Such a rule applied to all shipments is not fair to the public and would manufacture enemies much faster than anything else we could do. The shipping people are more friendly than the general average of citizens, and the enforcement of such a rule would prove disastrous in the long run, as it is not equitable. I wonder if the time will ever come when railroad men will see and understand that they cannot afford to perpetrate such rules and expect the people to think well of them. They cannot legislate damage claims out of existence in this summary way. When a railroad breaks or damages goods they ought to pay for them promptly. The rule is all right in reference to things shipped in open cars, like coal, etc., and is reasonable especially owing to low rates applied.

We believe an opinion of the above nature is important as coming from a man who is thinking seriously as to not only what is best, but what is right. What is right is the solution of today's problems. We have not investigated sufficiently to express either approval or disapproval of the plan discussed.

THE SIGNS OF THE TIMES.

The opening of spring trade throughout the country has stimulated the financial market quite perceptibly and has put new life into many industries that have been quiet since the flurry started last fall. The spring weather conditions have been favorable in the agricultural districts so far, which lends encouragement for better business in the rural districts, which in turn affects the manufacturing centers. All farm products are selling at high prices, which demonstrates the fact that there is no over-supply in that direction. These favorable features have already exerted such an influence on traffic that the roads have reported a decided increase in car operation. Not only the press of the country has been commenting on the improvements made, but also prominent railway officials have given voice to the above opinion.

Mr. Victor Morawetz, chairman of the Santa Fe Board of Directors, is among those who see promising conditions. He is quoted as saying:

How long the stock will remain on a 5 per cent basis will depend upon future conditions. Crop prospects are good along the Atchison, and in my opinion traffic returns will show a slow but gradual improvement. The falling off in net earnings has been due chiefly to the decline in volume of high grade traffic, such as merchandise, machinery, etc. The movement ought to increase from this time, but it is hard to tell how soon machinery shipments will be resumed on the usual scale. That will depend on money conditions.

Financial institutions which were forced to close their doors when struck by the panic, are again opening up for business, the most notable of which are the Knickerbocker Trust Company of New York City, and the Commercial National Bank of Kansas City. With the re-opening of these institutions, quite a number of smaller banking concerns have resumed business and again have the confidence of their communities. These new rays of light have done a great deal to brighten the business horizon. As soon as good crops are assured the coming

summer, business conditions are sure to take on a new lease of life. All classes of machinery will then commence to move and money will be forced into all channels of trade. As long as improvements are continually asserting themselves, just so long will confidence grow till it reaches its former strength. Along this line a recent issue of Collier's Weekly contained a timely article in which the following occurred:

Of course prosperity does not come by resolutions alone, but there are increasing indications that it is really on the way. Twenty-three thousand freight cars idle on February 5 were busy two weeks later, and as many more were employed within another ten days. The production of pig iron was greater by over 34,000 tons in February than in January, although the month was shorter. Work on the great new $15,000,000 plant of the Jones & Laughlin Steel Company, which was stopped after the panic, has been resumed. Rail mills are re-opening, and the makers booked orders for 150,000 tons of new rails in the first week of March. The Amalgamated Copper Company has started up its closed mines in Butte, copper production in the Lake Superior region is increasing, the lead mines of Wisconsin have been reopening, and the bank clearings in Omaha for the first week in March were the largest on record. But perhaps the most encouraging thing of all has been the resumption of business by the great Knickerbocker Trust Company of New York, whose closing marked the actual beginning of the panic. A most searching examination of the company's affairs showed that it was in excellent condition, but it needed time to realize on its assets.

AN APPEAL TO THE PUBLIC.

At a recent meeting of the Traffic Club of Pittsburg, Mr. Robert Mather, President of the Rock Island Company, made an address that has the ring of a good, sensible business man, and the inspiration of a worthy citizen. He takes the stand that railways should observe the laws and points out where they were financially benefited by complying with legal restrictions. He is strongly in favor of the traffic club meetings where representatives of large shipping firms and railway officials can get together to discuss matters of mutual interest to all, and he believes that members or representatives of the Interstate Commerce Commission should also attend the meetings and "umpire their disputes." "Under such a plan of co-operation, perfectly consonant with provisions of existing law, the regulating power would become, as it ought to be, an instrument of conciliation, and the fruit of its exercise would be commercial peace." As to the appeal to the public and the results of observing the law, Mr. Mather states the case plainly, as follows:

I fear that the public but dimly realizes the willingness of the railroads to accept and to further the reforms in transportation methods that recent changes in our laws and in their administration have produced. The effective prohibition of rebates and of free transportation, and the elimination of the many forms of discrimination which expressed the subservience of the carriers to the large shippers, mark the emancipation of the railroads from a slavery to abuses to which none of them would return. Most of them are not only willing but anxious to co-operate in any policy of reasonable regulation that will maintain their business on the higher plane of morality to which it has thus been forcibly lifted.

It continues, however, to be the claim of the railroads that they shall not be so regulated as to be prevented from earning interest on their bonds and reasonable dividends on their stocks. And they insist that not only they and their security-holders and their employes, but the nation at large, is interested in their continuing ability to earn those charges and dividends. For, in the absence of such earnings, their securities become discredited, they are in consequence unable to provide the added mileage and increased facilities which the growing commerce of the country demands, and thus they fail to support not only their own normal quota of employes, but millions of others of our citizens who depend upon the many industries that the ordinary activities of our railways keep in operation. The dark days through which we are passing lend telling weight to this contention.

The insistence of the railroads upon this position involves no criticism of the policies of the President. Indeed, he admits that the railroads should earn their interest and charges, and concedes that, generally speaking, they are not overcapitalized. His policies, however, do not concern themselves, primarily, with the conservation of the revenues of the railroads. I understand his attitude in this respect to be expressed in the scriptural injunction: "Seek ye first the kingdom of God, and his righteousness; and all these things shall be added unto you." The practice of the railroads in the past, it must be confessed, has been to reverse the order of this test—to seek first their revenues and to await with patience the coming of the kingdom of God. It is not surprising, therefore, that they take hold of the first part of the program of this new dispensation, not only with awkwardness, but with some fear that the promise of the latter part may not be realized. It is a fact, however, that the first enforced steps taken by the railroads on the path of righteousness marked out for them by President Roosevelt have tended to increase rather than to diminish their revenues. The limitation of the pass privilege has clearly swollen the passenger receipts. The enforcement of the prohibition of rebates has not only turned our traffic men—and the traffic men of the shippers, too—from a life of daily crime, but has turned money into our treasuries. So clearly is this true that the chief political opponent of the President makes it his daily taunt that the only regulations the administration has actually enforced against the railroads have added to their revenues—as though that in itself were a crime to make the blood of the people boil.

But statesmanship that rises no higher in its treatment of this great question than to see good in no regulation save that which takes money from the railroads either lacks intelligence itself or assumes want of intelligence in the electorate to which it appeals. And I believe that the people could be led to see the essential identity of the prosperity of the country with that of the railroads, and the absolute dependence of the one upon the other, if only a voice could be found to raise that cry.

PERIL IN COMING CAMPAIGN.

The greatest moral uplift in history—the French revolution—dealt unwisely, to say the least, with the new social and economic situation which it produced, and cost France much in blood and in treasure that a calmer frame of mind and a different leadership would have saved to her. We stand in peril of making like mistakes if the issue is to be, in the coming campaign, which party will go to the farthest extreme in restraining the freedom and restricting the revenues of the railways. And that peril can only be escaped by offering to the intelligent choice of the people, against the program of the radical and the demagogue, a plan of rational regulation which, while holding fast to those ideals of integrity and morality by which the President insists that the business of the country shall be judged and controlled, promises just as clearly that neither the earnings nor the credit of the railroads shall be destroyed. There are voices in the land that could make such an appeal without peril of losing their hold on the conscience or the confidence of the people. And the admitted economic facts by which the appeal could be justified would, in my judgment, in times like these, convince the intelligence of the voters.

Mr. Mather called attention to the fact that transportation cost less in this country by one-half than that of Germany, barely one-third of that of France, and but little more than one-fourth of that of England. In fact, the thought of the cost of transportation in this country would never occur were it not brought up continually as a campaign issue. Did the public ever think of this? In touching on the question of capitalization of the roads, Mr. Mather said:

We "plead the baby act" as a nation when we cry out against the alleged overcapitalization of our railroad corporations. The state and the nation had their opportunity, at the time of issue, to prevent the sale and consequent validation of these "watered" securities. Why was their issue not prevented? Because, as a people, we were willing to pay the price and to take the chance in order to get the railroads built and the country developed. Well, the railroads were built and the country was developed because, by reason of this attitude of the people, the state and the nation, it was possible to sell the securities thus issued in the world's markets, and, through their sale, to obtain the money without which the railroads would not have been built and the country would not have been developed.

MR. HARRIMAN AND THE ERIE.

If current reports from Wall street are to be believed, it appears that Mr. E. H. Harriman is to become the controlling spirit in the Erie road. His entry into the Erie came about through financial channels in connection with the taking up of some $5,000,000 worth of short time notes which were about to mature.

According to the report emanating from New York, in providing $5,500,000 for the payment of the maturing notes, Mr. Harriman is to take $5,000,000 of the new 6 per cent notes—which amount to a total issue of $15,000,000—for payment of car trust certificates aggregating nearly $5,000,000, also to provide funds for the immediate needs of the road. This action on the part of the well-known railway financier, gives support to the belief that he is to take over the Erie as an Eastern outlet of a great trans-continental system. Should the latter be a fact, the Erie will connect his Western lines with the Atlantic Seaboard at New York via Chicago. At the latter point connection is made with the Illinois Central which connects with the Union Pacific at Omaha and with the Southern Pacific at New Orleans.

The Erie has about 2,500 miles of road, the main line of which is between New York and Chicago, touching many important points between the two cities, including Cleveland and Buffalo. It is a splendid property, Mr. Harriman has the reputation for building up large systems to the highest standards and never spares money in bringing about results. The authorized capital of the Erie is $217,000,000 and its total bonded indebtedness on June 30, 1906, was $128,660,275. The company was incorporated in the State of Illinois in 1850 and was unfortunate in its early history owing to the financial treatment it received through the hands of Jay Gould and other Wall street railway financiers. In fact the Erie has made more history, perhaps, than any other road in the country.

As to the late development in the Harriman deal, a story is current about as follows: "Mr. Harriman learned some weeks ago that the Erie might have trouble in getting the money to meet its obligations of $5,500,000 which matured April 9. Then through interests allied to him, he made sure that no banking establishment was likely to advance the necessary assistance. His next step was to allow alarming reports of these difficulties to get circulated broadcast, so that the holders of the short-time notes would become alarmed and sell them at panic prices. On the strength of these reports he was able to send agents in the field to take up these notes at 80 cents on the dollar—an investment of only $4,000,000. His spectacular offer followed by which he assumed to be saving the Erie from the hands of a receiver. This offer had a string tied to it as it were—that is it was for the purchase of new 6 per cent notes at 95 cents on the dollar—sufficient to pay off all the old notes at par and a bonus of 5 per cent in cash. As he owned already $5,000,000 of the $5,500,000 notes, it was necessary for him to put up only $500,000 more in cash. Even some of this came back to him as certain speculators had sold notes they did not own, and in order to "deliver the goods" on April 10, when the deal was made, they were forced to pay a premium." The above is the latest Wall street story in the eventful history of the Erie.

SPECIAL REPORT OF INTERSTATE COMMERCE COMMISSION.

Advance copies of the special report, No. 1, of the "Intercorporate Relationships of Railways of the United States as of June 30, 1906," is just from the press, having been compiled by Hon. H. C. Adams, in charge of statistics and accounts for the Interstate Commerce Commission. As it is the first report of its kind ever compiled, it is regarded with unusual interest. Though it is addressed to the Commission, yet it is no doubt intended for the public. The report is the result of an investigation into the incorporate relationships of railway companies as shown by the extent to which and the manner in which the securities of one company are owned by another company. Mr. Adams states that "the warrant for publishing the result of this investigation in detail, is the light they throw upon the manner in which railway corporations once independent, have been welded into highly centralized systems." According to his statement the above was not the original idea in having this information gathered. As an explanation he states fully as follows:

The original purpose of the investigation was somewhat different, the prime consideration for which it was undertaken being the desire to obtain information which would be of assistance in arriving at tenable conclusions relative to the proper form of a standard balance sheet. It was a step in the formulation of a uniform system of accounts which, under the law, the commission is empowered to prescribe. The balance sheet, if properly drawn and jealously guarded, is the key to the operating and financial situation of a railway corporation. A second motive for this investigation into the intercorporate relationships of railways was found in the fact that the statement of railway capital and of railway capital per mile of line compiled from the annual reports of carriers and annually published in the "Statistics of Railways in the United States," while technically correct in that it results from a correct compilation of the returns of the carriers, does not in all respects furnish the public, Congress, the courts, or the Commission with the information in which they are specifically interested. A single carrier in making return of capital outstanding, or, as it is frequently expressed in reports to stockholders, "capital in the hands of the public," regards another carrier as one of the public, and consequently makes no deduction on account of the fact that any portion of the securities which it has issued is held as an asset or a pledge by another carrier. This may be a correct statement from the point of view of the carrier. If, however, the problem be to state the amount of securities which are an actual or a contingent claim upon the revenues of the railways of the country considered as a whole, it is evident that the phrase "in the hands of the public" must exclude from outstanding capital all railway holdings. This has been done by the present investigation, and results in a reduction of the amount which general discussions have heretofore accepted as measuring the claim of railway securities on railway revenues from $67,936 per mile of line to $58,050 per mile of line.

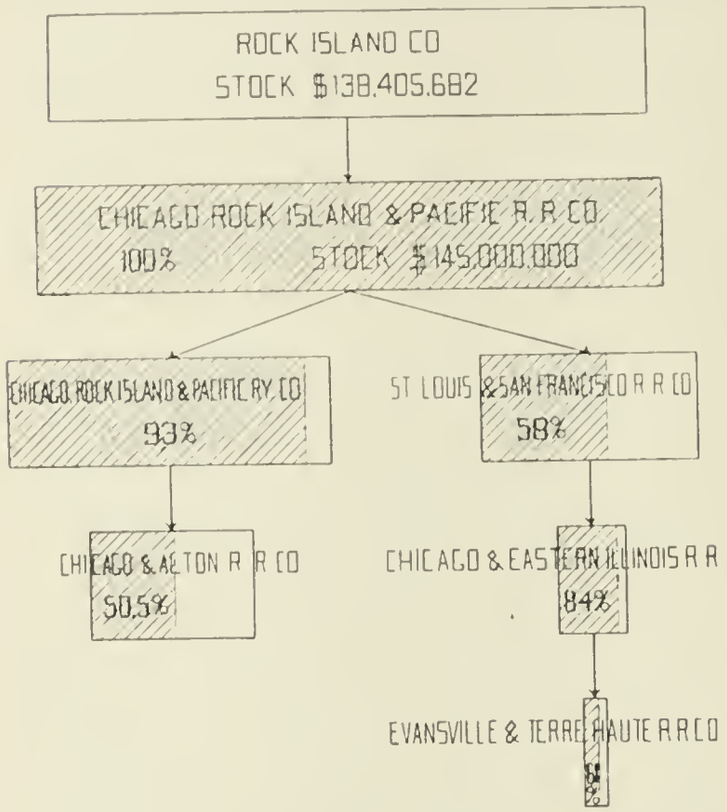
RAILWAY HOLDINGS OF THE PUBLIC.

It will be seen (referring to table) that of the total outstanding funded debt, amounting to $9,342,961,476, the railways themselves held $1,440,360,507, or a little over 15 per cent, while of the total stock outstanding, amounting to $8,884,234,925, the railways held $4,114,851,990, or 46 per cent. The preponderance of stock holdings and the reasons therefor have already been discussed. The deduction of the securities held by railway corporations from the total outstanding leaves in the hands of the public on June 30, 1906, $7,902,600,969 of funded debt and $4,769,382,935 of stock. Before obtaining the amount of securities per mile there should be deducted from these figures the securities outstanding in the hands of the public of roads under construction which have no operating mileage, in order that the per mile figure shall apply only to property actually employed in railway transportation. The securities in the hands of the public of roads under construction, as shown in the preceding table, amount to $60,200,000 of funded debt and $26,333,350 of stock. The deduction of these amounts from the total outstanding in the hands of the public leaves a net total of $7,842,400,969 of funded debt and $4,743,049,585 of stock. Employing the figure of total railway mileage in the United States already determined upon, namely, 216,803.98 miles, we find the funded debt in the hands of the public to be $36,173 per mile and the stock to be $21,877 per mile, or a total railway capital per mile of $58,050. This figure has eliminated, so far as possible, all capitalization created for the purpose of carrying the securities of other corporations, and is a figure which may be measured approximately against actual railway values. The question occurs at this point whether the figure of net railway capital has been inflated to any extent by including in the table capital which covers investments in property other than that which is employed in railway operation. It will be recalled from the statistical statement at the beginning of this report that a figure amounting to $208,263,000 of funded debt and $187,053,000 of stock, which is apportioned to other properties, is included in the total of outstanding securities but excluded from consideration in the capital statement of the Statistics of Railways in the United States. While a considerable amount of this apportioned capitalization is held by railways themselves and does not, therefore, appear in the net amount of securities in the hands of the public, yet this latter figure is doubtless

increased to some extent by the inclusion of securities which rest upon other than railway properties, such, for example, as that issued to cover mining properties.

Table I and II, which embody the main results of this investigation, include a list of corporations owning railway mileage to the extent of 216,803.98 miles, with a total gross outstanding capitalization of $18,227,196,401, divided into $9,342,961,476 of funded debt and $8,884,234,925 of stock. This total capitalization is in excess of that reported in "Statistics of Railways in the United States" for 1906 by $3,656,774,000.

To illustrate the relations of the holding company and the roads controlled by it, the report published diagrams, among which is the accompanying diagram of the Rock Island Company, which makes clear the relationship of its roads. It is understood, however, that



INTERCORPORATE RELATIONSHIPS OF THE ROCK ISLAND SYSTEM.

this company no longer holds any considerable amount of the Chicago & Alton stock, that property having lately passed to the control of the Clover Leaf.

THE TRAFFIC CLUB OF NEW YORK ANNUAL DINNER.

The Traffic Club of New York gave its annual dinner at the Hotel Astor the 6th of March. The occasion gave opportunity for the presence of many men of note, and the addresses of the prominent speakers are of much importance, as they voice their opinions of commercial conditions and their causes. All of the speakers are leaders in their respective fields. The "Mark Twain" of the entertainment seems to have been a railway supply man who, in rising from the commercial ashes, gives proof of the fact that he can make a joke and perhaps take one.

The toastmaster, George A. Cullen, in his opening remarks was up to the standard of first-class equipment for the work, and gave the best of service. This erstwhile modest blossom of manhood, exhaling a fragrant moral and social perfume locally in Missouri, has by leaps and bounds reached New York by way of Chicago, and in the great garden of publicity he now as unostentatiously diffuses the same wholesome aroma, but national in character. It is not a case of "show me—I'm from Missouri," but an instance of "I'm from Missouri, where they teach you how." The New York meeting is another illustration of the real fraternity to be brought about by the element of frankness between interests more or less alienated by lack of acquaintance. The toastmaster, who is general passenger agent of the D., L. & W. Railway in New York, and the other members of the club who are responsible for the character of the entertainment are to be congratulated.

THE TRAFFIC CLUB'S NEW PRESIDENT.

At the recent election of The Traffic Club of Chicago, George H. Ingalls, freight traffic manager of the New York Central Lines West, was chosen to succeed President F. T. Bentley, who retires, and who is a charter member, and has been since the organization a most effective presiding officer. Mr. Ingalls has had, for his years, a most extensive and varied experience. After graduation from Harvard he went into railway service, first in the operating department, being engaged in the general manager's office of the C. & O. Railway, then in the general superintendent's employ, and later as assistant to the president, in charge of coal and coke traffic. In 1901 he was made assistant general freight agent of the Big Four Railway, and a year after this general freight agent. His present official connection with the New York Central lines followed logically his past experience. In force of character he is typical of the rising men of the day, and in his outlook upon commercial conditions he has the breadth of opinion that is necessary to meet the contingencies in business evolution and a public sentiment requiring more frankness and co-operation in the treatment of business than ever before. Mr. Ingalls is alive, we believe, to the possibilities and opportunities of the Traffic Club. He can see that, with its members so freely distributed among the various commercial pursuits, the organization must be broad enough to touch all interests, and in that way must anticipate a constantly enlarging field of usefulness.

F. T. BENTLEY AS PRESIDENT OF THE CHICAGO TRAFFIC CLUB.

F. T. Bentley, charter member and now ex-President of the Traffic Club, has within the year of his incumbency given a service to the organization of more than ordinary power and far-reaching results. Because of his quiet methods, the effectiveness of his régime is only to be gauged by the influential position the club has at this time, and the opportunities for an ever-growing scope of operations and usefulness. In harmony with his capacity for proper direction there has been loyal co-operation with his plans, but the plans have very largely originated with him, and it has been his initiative in branching out into new fields of exploration and adjustment which has, as the year passed by, brought growing honor and usefulness to the association. As time passes along, the members will not fail to note the true appreciation of conditions, warranting him in his efforts to promote the affiliation of interests that otherwise were likely to grow farther apart. What Mr. Bentley has done in the line of co-operative publicity, having as its final effect the

smoothing away of irritation by proper compromise, is of great interest beyond the limits of Chicago, for the reason that whatever of good is done here is seen and known far and wide. In cordially welcoming the new president, the Club sincerely acknowledges its obligation to a most earnest and capable executive, who now turns over the badge of office to his successor.

TRAFFIC AND FINANCE.

The Mobile & Ohio has restored its dining-car service between St. Louis and Corinth, Miss., effective April 26.

The state authorities of Oklahoma are trying to dissolve the official relations between the Rock Island and Frisco roads in that state.

The annual meeting of the Freight Claim Association has been postponed from May 20 to June 17. Atlantic City is to be the convention city.

The ticket brokers of St. Louis have been getting the worst of the legal contests and have decided it best to quit the city or embark in different vocations.

The American Express Company has extended its service over the Chicago & Alton, succeeding the United States Express, the contract of the latter having expired.

The provincial legislature of Nova Scotia has petitioned the Canadian government to acquire all the roads of Nova Scotia and add them to the Intercolonial railroad.

According to the plans of the consolidation of the National Lines of Mexico and the Mexican Central, the new company will have a total capitalization of $615,000,000, gold.

A report from Kansas City states that the ticket scalpers of that city will no longer fight for existence, but will close up business and quit the field. The courts are against them.

The Western Union is protesting against the order of the Oklahoma corporation commission to transmit messages of ten words or less for 25 cents, between stations within the state.

The Chicago office of the Intercolonial Railway has removed from 34 Wabash avenue to room 217, Royal Insurance building, where Mr. John A. Boak, freight agent, has fitted up a handsome office.

According to the report of the American Railway Association of March 18, there were 17,950 less idle cars at that date than at time of former monthly report. This surely indicates that business is picking up.

The secretary of the Texas Cattle Raisers' Association states that the roads of southern Texas are refusing to accept for shipment cattle that have not been properly inspected for contagious and infectious diseases.

Beginning May 1, the St. Louis, Brownville & Mexico will operate trains into Houston, Texas, using the tracks of the Santa Fe between Algoa and Houston. A permanent trackage agreement has been entered into between the two roads.

According to a London report of April 9, the annual report of the Grand Trunk at a meeting held in that city was not received with much enthusiasm, and it was suggested that the road should be best managed in Montreal, and not in London.

In order to make sure of their control of the Western Maryland, the Gould interests have decided to put out about $850,000 worth of receiver's certificates. The funds thus raised will be applied on the payment of interest now due on first mortgage bonds.

Through the influence of commercial and agricultural interests of the state of Texas, the railroad commission of that state has decided to be more liberal in exacting the roads to make improvements. The orders issued late last year are not to be rigidly enforced, according to press reports from that state.

The Chicago, Milwaukee & St. Paul officials have closed a deal with the Oska Shossen Kaisha Company of Japan to operate a steamship line between Seattle and Japan when the road is completed to Seattle. This will be the third Japanese steamship line plying between the American Pacific coast and the Orient.

The Traffic Club of St. Paul was organized in that city on April 9, with the following officers: President, G. H. Sharpe of Farwell, Osmon, Kirk & Co.; vice-presidents, E. D. Parker, "Soo Line"; C. S. Beach of Finch, Van Slyck & McConway; W. E. Hall, United States Express Company; secretary, P. J. Pheeney, Great Northern Railway; treasurer, H. R. Ballard, New York Central.

E. J. Cook, general manager of the Rochester Railway Company of Rochester, N. Y., has announced that his company has canceled all its concurrences on passenger, baggage, express and freight matter with all steam roads and boat lines doing an interstate business. The action is taken because of the system of uniform accounting and reporting proposed by the interstate commerce commission.

Mr. J. Kruttschnitt of the Harriman lines is quoted as saying: "Business has reached quite a low water mark, and any faint hope is eagerly seized. We have hopes, however, of business soon recovering from its present state of fright and settling back into the old channel. Some lay the cause of business depression to one thing and some to another, and I cannot say, myself, what the cause is. We hope the revival will not have to wait until after the presidential election."

On April 6 the lower house of Congress passed the bill amending the anti-pass provisions of the interstate commerce law so as to permit the issuance of passes to furloughed, pensioned and superannuated employes, persons who have become disabled or infirm in the service of common carriers, and the bodies of persons killed in the employment of common carriers, and former employes traveling for the purpose of entering the service of common carriers, and the families of all such.

A circular has been issued by the Illinois Central which announced that it was the intention of the directors to issue only half of the $28,512,000 of new stock, if it is authorized by the stockholders at a meeting in Chicago on May 18. The other half of the proposed issue will be kept in reserve in the company's treasury. It is also announced that stockholders will be asked at the May meeting to authorize the purchase of the Kensington & Eastern railroad and the Memphis & State Line railroad.

CANADIAN RAILWAY STATISTICS.

According to the government report, the mileage of the railways of Canada at the close of the year ended June 30, 1907, was distributed as follows among the several provinces: Ontario, 7,637; Quebec, 3,515; Manitoba, 3,074; Saskatchewan, 2,024; New Brunswick, 1,502; British Columbia, 1,685; Nova Scotia, 1,329; Alberta, 1,323; Prince Edward Island, 267; Yukon, 96; total, 22,452 miles. With double tracks, sidings and spurs, the mileage amounted to 27,611 miles. The Dominion and provincial governments have aided these railroads to the amount of $181,298,412, besides land grants as follows: Government lands, 31,762,945 acres; provincial lands, 20,420,109 acres; total, 52,183,054 acres.

Comparing the rate of capitalization, per mile, of Canadian roads with those of foreign countries, the official report gives the following results: Dominion of Canada, $56,995; United States, $67,936; United Kingdom, $273,437; New South Wales, $63,063; Victoria, $56,113; India, $56,716. The traffic during the year was as follows: Passengers carried, 32,137,319; passenger earnings, $45,730,652; freight carried, 63,866,135 tons; freight earnings, $95,738,079; operating expenses, $103,748,672.

MEXICO TODAY.

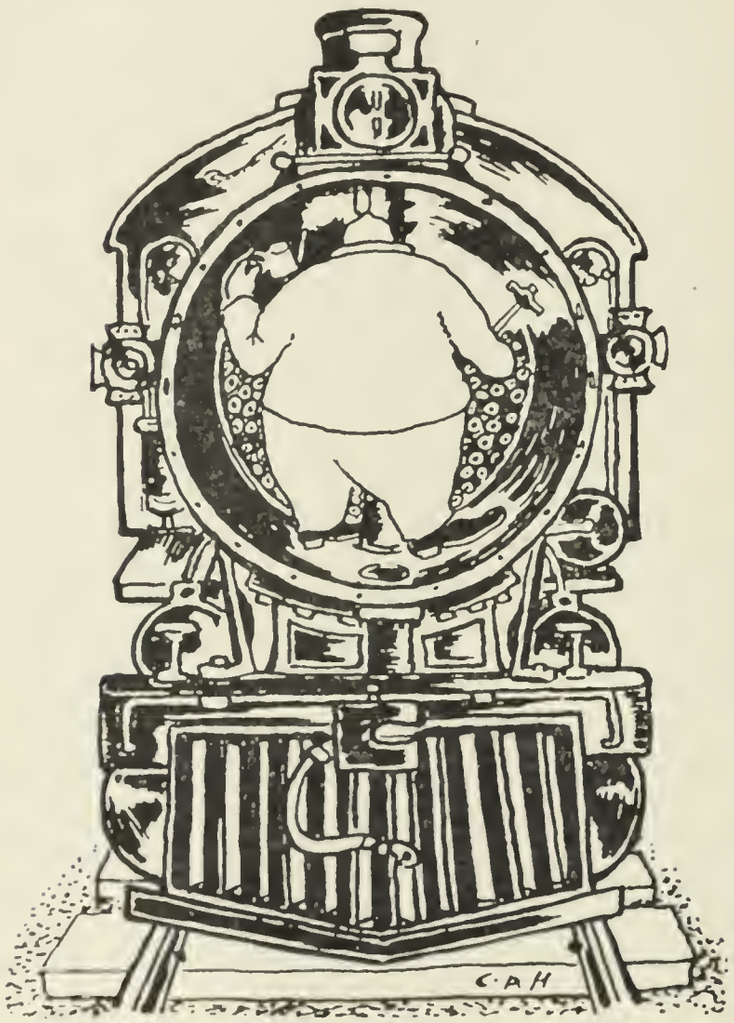
The advertising department of the National Lines of Mexico has decided to issue a monthly publication, known as Mexico Today. The first number is just from the press, and reflects credit upon the company issuing it. Mr. R. S. Cauvin, who is editor, has taken special pains to make it one of the handsomest and most interesting publications ever issued in Mexico, and he has succeeded. The work is finely illustrated, and its descriptive matter is charming. The republic of Mexico might well feel proud to have such a high-class journalistic enterprise within its borders. It is a credit to that country.

The railroad division superintendents of Texas have perfected an organization which includes the division superintendents and assistant division superintendents. The object of the association, as stated by a member, is for the good of those who patronize the railroads as well as for the railroads. As the full plans of the organization have not been formulated, its mission is not ready for publication. A better understanding among the operating officials is one of the benefits that will result.

FROM MY OBSERVATION CAR.

BY R. R. JESTER.

While it may not be necessary for me to introduce the accompanying railway man to you, and for fear you cannot recognize him by viewing his posterior elevation, will state that it is none other than Colonel L. E. Foot, the distinguished traveling engineer of the Frisco system in Missouri. While filling his official position he is also filling the front end of a big Frisco engine. Those who know Colonel Foot say that this is an exact likeness of him. Because he is caught in this picture with a hammer in his hand, is no evidence that he is a "knocker." Far from it. His profession sometimes requires him to take a hand in the



mechanical affairs of the Frisco system, and this is one of the occasions he did so. Mr. C. A. Hiatt, the expert cartoonist, happened along about this time, hence I am able to favor our readers with this likeness of Colonel Foot. At the time this snapshot was produced he was not looking for trouble for the boilermakers, but was trying his new hand lamp in looking into the firebox from the front end, or something of that sort.

* * *

Since the public has been reading so much about the way the new state of Oklahoma is trying "to do" the railroads, no doubt many will be interested in learning the why and wherefore of all this radicalism. It is natural to suppose that inasmuch as the roads had spent millions of dollars in building lines, advertising the country when raw and untamed and getting thousands of settlers to live there, that for a time at least there would be a fair crop of gratitude produced; but it seems, instead, that that country had an overproduction of politicians, the very first year. It started out with a constitutional corporation commission, which has been making history ever since Oklahoma became a state, November 16, 1907. The personnel of that ever-zealous commission is an interesting body of Oklahoma statesmen. The chairman is the Hon. J. E. Love ("Jack" for short), who has won something of a reputation at home for "doing things"—that is, doing them his way. His fortune, however, has been made in his profession as a mule raiser, hence it is easy to realize why there is no trouble for him to give attention to kicks, *et cetera*, of the shippers and office-seekers. Another of this able body of corporation and transportation regulators is the Hon. A. P. Watson, who has achieved fame and fortune in his township by propagating potatoes. Why his name is not Mr. Murphy, I do not know. However, I am told that he is conservative, as well as a potato farmer. The third character in this remarkable triumvirate is Hon. J. J. McAlester, a banker by profession and a gold-brick speculator by accident. He has retired from the banking business, and if you say anything to him about gold bricks he will declare that he never invested over $10,000 in gold bricks, and that was all at one time. Let us trust that it was the last time, too. If you listen to the average business man of Oklahoma, he will lead you to believe that they have a corporation commission that is honest at least, and the square deal is given everybody. One thing that can be said to its credit is that when several roads showed the two-cents-per-mile rate to be confiscatory, the commission promptly authorized them to charge more. A number of rulings which are beneficial to the public have also been made, notably compelling telegraph and express companies to furnish free deliveries in the cities, reducing rates on lumber, coal, grain, etc. To say the least, the commission has made something of a reputation in the brief period it has been earning its salary and showing the corporations what the people don't want. It is my prediction that every member will be fully qualified and deeply inspired to run for governor by the time his present term of office expires. As its authority is almost supreme now, it can be seen where the commission can rule for the weal or the woe of the state. An appeal from its findings can be made only in the state supreme court, and its duty is the supervising, regulating and controlling all transportation and transmission companies doing business in the state. If the experience and knowledge of these men were as extensive as their authority, they might be considered of some value to their state as officers. Their position is a trying one, even for the most experienced and broadest-minded men. However, experience in raising mules or potatoes or clipping coupons is not directly in line with handling important state affairs and supervising transportation properties. That right, gentlemen?

* * *

What are the requisites of a stationmaster? When in quest of a competent man to act as stationmaster of the new station just completed at Baltimore by the Washington, Baltimore & Annapolis electric line, General Manager J. N. Shannahan decided to get the largest he could find for the money. He advertised for the biggest man in Baltimore, and of the applicants he selected Mr. Ralph Nyman, aged 24 years, 6 feet 6 inches tall, and weighs 325 pounds. Does this mean that size and force are needed in acting as stationmaster on electric lines? The steam roads usually prefer men of experience and mental caliber. Perhaps the heavy-weights have these qualities, too.

* * *

Who believes that general passenger agents don't care for a jolly good time? The New England Passenger Association held its regular annual meeting at Waterbury, Vt., this year, on April 1, 2 and 3, and made pleasure as well as business out of it. Among the leading features was an outing to the Henry Carpenter sugar camp, near that place, which was reached by the general passenger agents and families by the "Overland Route," which consisted of five ox teams drawing as many hayracks upholstered with straw. The overland trip of two miles was made by the party in the remarkable time of one hour and thirteen minutes. All kinds of sugar and sap menus were tested and discussed at the gathering. The railroad portion of the program was handled later at the Inn. All that was transacted there would also interest the public, but, for the lack of space, will not publish it now. Col. J. W. Hanley, general passenger agent of the Central Vermont, acted as host, entertainer and guide, and I am told that he did credit to the profession. About sixty-four ladies and gentlemen composed the party of railway business men and pleasure-makers.

* * *

Congressman Olmstead is quoted in the Congressional Record at Washington, as follows: "But to return to the question of animal industry. All kinds of questions are propounded to us. Why, I have been told that some time ago a member from Missouri had a letter from a constituent asking what price he could obtain for a carload of mules in this city. He replied that the street cars were run by electricity and the government was run by jackasses. So he said that there was no use for mules in Washington."

PERSONAL

EXECUTIVE, OPERATING AND PURCHASING.

J. R. Orndoff has been made trav. strkpr. of the B. & O. at Pittsburg, Pa.

F. J. Kelly is supt. terms. of the Alton-Clover Leaf system at E. St. Louis, Ill.

W. H. Cope has been made sec. to the receiver of the I. & G. N. at Houston, Tex.

George W. Walliser has been appointed supt. of the Peoria & Pekin Union, at Peoria, Ill.

C. H. Ketcham has been made genl. mgr. of the East Broad Top railroad, office at Orbisonia, Pa.

K. A. Gohring has been appointed supt. of the Ann Arbor, at Owosso, Mich., vice **E. Hartenstien.**

C. A. Beck has been chosen asst. sec. of the Illinois Central, office at Chicago, vice **W. G. Bruen.**

Homer Loring of Boston, Mass., has been elected pres. of the Macon, Dublin & Savannah, vice **W. A. Garrett.**

J. M. Turner, gen. mgr. of the Georgia & Florida, has removed his office from Augusta, Ga., to Douglas, Ga.

L. J. Irwin has been made genl. supt. of the L., H. & St. L. at Louisville, Ky., vice **A. M. McCracken,** resigned.

L. P. E. Giffroy has resigned as supt. of pass. serv. and purch. agt. of the Mexican-American Steamship Company.

H. E. Warner, trn. mstr. of the Detroit, Toledo & Ironton at Springfield, O., has been appointed supt. at that place.

J. C. Patterson has been appointed div. supt. of the Pullman Company at Chicago, succeeding **F. E. Rice,** deceased.

J. W. Griffey has been made asst. trn. mstr. of the B. & O. at Glenwood, Pa. **John Weaverling** has been made chf. disp.

B. H. Ball has been chosen second vice.-pres. of the P. & R., vice **C. E. Henderson,** resigned, office at Philadelphia.

C. E. Henderson has tendered his resignation as second vice-pres. of the Philadelphia & Reading on account of ill health.

H. G. Clark has been appointed act. div. supt. of the Missouri Pacific at Osawatomie, Kan., vice **J. F. Simms,** resigned.

J. B. Arbegust has been appointed supt. of terminals of the Louisville & Nashville at Louisville, Ky., vice **C. J. Klein,** deceased.

H. W. Clarke has been made genl. supt. of the I. & G. N., office at Palestine, Tex. **J. C. Daley** becomes supt., office at Palestine.

B. F. Dunn has resigned as genl. supt. of the Saratoga & Encampment at Saratoga, Wyo., to accept service elsewhere.

E. L. Bemiss, second vice-pres., and **W. H. Alexander,** aud. of the Georgia & Florida, have moved their offices to Douglas, Ga.

F. W. Stanyan, supt. and treas. of the Montpelier & Wells River, has been appointed genl. supt., with office at Montpelier, Vt.

P. Valier, purch. agt. and supt. of the La Crosse & Southeastern, has been elected vice-pres. and genl. mgr. at La Crosse, Wis.

H. M. Lambert has been made trn. mstr. of the Inland Empire, at Spokane, Wash. **A. S. Bimrose** becomes chf disp. at Spokane.

M. M. Reynolds has been chosen fifth vice-pres. of the Grand Trunk and third vice-pres of Grand Trunk Pacific, office at Montreal.

A. V. Brown, hertofore supt of the Burlington, has been appointed mngr. of the Missouri & North Arkansas, at Eureka Springs, Ark

N. H. Young, trn. mstr. at La Crosse, has been appointed supt. of terminals at St. Louis and **D. J. Shanesy** succeeds **Mr. Young** at La Crosse.

A. C. Bird, formerly vice-pres. of the Gould Lines, has been elected pres. of the Los Angeles Railroad and the Los Angeles Harbor Company.

H. R. Hanlin has resigned as trn. mstr. of the B. & O. at Connellsville, Pa., to become genl. supt. of the Tonopah & Goldfield, Tonopah, Nev.

W. S. Melton, supt. of telegraph of the Cincinnati, New Orleans & Texas Pacific, has removed his office from Chattanooga, Tenn., to Lexington, Ky.

F. L. Johnson, supt. of terminals of the Burlington at St. Louis, has been appointed supt. of the Chicago division at Chicago, vice **W. S. Kirby,** transferred.

J. McCarty, trn. mster. of the Southern Pacific at Montello, Nev., has authority extended as far east as Ogden, office at Ogden, Utah, vice **E. S. Luty,** deceased.

J. C. Nolan, formerly supt. of the Louisiana division of the Rock Island, has been elected pres. of the Ruston, Natchitoches & Northeastern, with office at Ruston, La.

G. W. Sharp has been appointed div. strkpr. of the Santa Fe at Wellington, Kan., vice **L. V. Hyatt. C. M. Smith** has been appointed div. strkpr. at Winslow, Ariz., vice **E. T. Isherwood.**

J. H. Sanford, asst. purch. agt. of the New York, New Haven & Hartford, has been appointed purch. agt., office at New Haven, Conn., succeeding **A. E. Mitchell,** whose title was mgr. of purch. and sup.

O. L. Eaton, asst. trn. mstr. of the B. & O. at Glenwood, Pa., has been appointed trn. mstr. at Connellsville, Pa., vice **H. R. Hanlin,** resigned. **J. W. Griffey,** chf. disp., succeeds **Mr. Eaton** as asst. trn.. mster.

P. S. Sampson has been appointed supt. of the Chicago & Eastern Illinois, at Brazil, Ind., vice **E. H. De Groot,** transferred to St. Louis, Mo., as supt. of the St Louis division in place of **R. D. Miller,** deceased.

D. F. Bucher, genl. supt. of the Mexican Central, has been appointed supt. of car serv., with office at Mexico, Mex., vice **H. Putnam,** who has been appointed chf. of trn. auditors. The positions of gen. supt. and fuel agt. have been abolished.

F. M. Spaidal, genl. supt. of the Canadian Northern, Quebec, has been appointed genl. supt. of the Quebec & Lake St. John, at Quebec, Que. **Alexander Hardy,** genl. frt. and pass. agt. of the Quebec & Lake St. John, has been appointed strkpr.

Oliver Snyder, supt. of Galveston div. of Santa Fe, has his authority extended over the Southern div., office at Temple, Tex. **K. S. Hull** is made supt. of the Texas & Gulf, office at Longview, Tex. **M. T. Pratt** returns to the engineering department.

F. S. James, supt. of the Colorado Southern, New Orleans & Pacific at Opelousas, La., has been appointed car serv. agt. of that road and the Beaumont, Sour Lake & Western, at Beaumont, Tex., vice **A. V. Holmes,** transferred. **H. Hall,** supt. of the latter road at Beaumont, Tex., becomes supt. of the Colorado Southern, New Orleans & Pacific.

The following appointments are announced on the Illinois Central: **A. H. Egan,** supt. Nashville and Louisville divisions, at Louisville, Ky.; **L. E. McCabe,** asst. supt. Nashville division, at Princeton, Ky.; **C. B. Fletcher,** supt. Omaha division; **F. M. Jones,** trn. mstr. Omaha & Cherokee, divisions; **H. P. Campbell,** trn. mstr., at McComb, Miss., vice **B. F. Galvani,** made supt. at Vicksburg, Miss.; **P. Laden,** supt. Indiana Southern, office at Mattoon, Ill.; **L. W. Baldwin,** trn. mstr. Indiana Southern, at Indianapolis, vice **R. A. Brown,** made chf. disp. at that point. **W. Atwill** is made chf disp. at Dubuque, Ia.

W. S. Kirby, supt. of the Burlington, has been appointed supt. of the Ottumwa division at Ottumwa, Ia., vice **A. V. Brown,** resigned. **J. Russell,** supt. of the Brookfield division, has been appointed supt. of the Aurora division at Aurora, Ill., vice **F. H. Ustick,** promoted. **E. P. Bracken,** supt. of the Sheridan division, has been transferred to the Brookfield division at Brookfield, Mo. **F. B. Miller,** supt. of the Sterling division, becomes supt at Sheridan, Wyo. **L. B. Lyman,** trn mstr. at Sheridan, has been appointed div. supt at Sterling, Colo. **A. W. Newton** retains his position as genl. inspr. of permanent way and structures

TRAFFIC AND ACCOUNTING.

G. E. Deyo has been chosen and of the P. & P. U at Peoria, Ill

W. P. Jones has resigned as frt agt. of the H. & T. C. at Ft. Worth, Tex.

F. W. Morse has resigned as genl pass agt. of the Montpelier & Wells River.

B. C. Fleming has been made div agt. of the Mexican Central at Mexico City.

O. F. Nau has been chosen treas. of the Indianapolis Southern, office at Chicago.

E. C. Durham has been made genl trf. mgr. of the Texarkana Southeastern at Diboll, Tex.

T. A. Hood has been made tick agt of the Hamburg-American S. S. line at Houston, Tex.

R. N. Gordon has been appointed trav. frt and pass. agt. of the Rock Island at Seattle, Wash.

W. V. Newlin has been made chairman of the Minneapolis Traffic Association at Minneapolis, Minn.

F. E. Gauden has been made joint tick. agt. of the T. & P. and the Iron Mountain at Texarkana, Tex.

I. H. Griffin has been made local agt. of the I. & G. N. at Galveston, Tex., vice J. H. Hawley, resigned.

W. R. Lence has been made local frt agt. of the Missouri Pacific at Kansas City, vice R. P. Isitt, resigned.

C. V. Palmer has been appointed com. agt. of the Southern at Charlotte, N. C., vice J. T. Rigler, resigned.

W. J. Newcom has resigned as genl. live stock and claim agt. of the Texas Midland and that office is abolished.

J. F. Sullivan has been made trav. pass. agt. of the L. & N. at Houston, Tex., vice P. W. Morrow, transferred.

A. L. Myer has been appointed asst. genl. frt. agt. of the Chesapeake Steamship Company at Baltimore, Md.

J. C. Eaton, trav. pass. agt. of the L. & N. at Knoxville, Tenn., has been appointed dist. pass. agt. at that place.

S. R. Mealy has been appointed actng. aud. and paymstr. of the Texas & Gulf at Longview, Tex., vice L. B. Jones.

Jerome J. Struck has been made city ticket agt. of Canadian Pacific at Spokane, Wash., vice J. J. Wilson, resigned.

William Pratt, agt. for the C. & A. at E. St. Louis, Ill., has been made joint agt. also of the Clover Leaf at that point.

E. A. Chavannes has been appointed aud. of the Missouri, Oklahoma & Gulf, at Muskogee, Okla., vice R. P. Dunbar.

R. L. McKee has been appointed trav. frt. agt. of the Louisiana Railway & Navigation Company at Little Rock, Ark.

J. H. Glynn has been appointed New England agt. of the Southern Pacific at Boston, Mass., vice E. E. Currier, deceased.

C. A. Knowlton has been made frt. agt. of the S. A. & A. P. at Cameron, Tex., vice E. E. Duniline, transferred to Kerrville, Tex.

A. G. Cramer, sec to the asst. genl. mgr. of the Big Four, has been appointed city pass. agt. of the Canadian Pacific at Cincinnati, O.

A. B. Smith has been appointed genl. pass. agt. of the New York, New Haven & Hartford at Boston, Mass., vice A. C. Kendall.

W. T. Allen has been appointed coml. agt. of the Rock Island at San Francisco, Cal., vice H. W. Adams, resigned; effective on May 1.

W. B. Hinchman has been appointed genl. agt. of the Tonopah & Goldfield, with office in the Monadnock building, San Francisco, Cal.

W. C. Stith, formerly frt. traf. mgr. of the Missouri Pacific, has been appointed traf. mgr. of the Waters-Pierce Oil Company at St. Louis.

H. C. Bailey, northwestern pass. agt. of the L. & N. at Chicago, has been appointed div. pass. agt. at Atlanta, Ga., vice J. G. Hollenbeck.

A. Pope, trf. mgr., and B. F. Holzendorff, coml. agt., of the Georgia & Florida, have removed their offices from Augusta to Douglas, Ga.

James Gibson, trav. pass agt of the Chicago & Northwestern at Madison, Wis., retired on April 1 under the pension rules of that company.

I. W. Gantt, div. frt. agt. of the Grand Trunk at Toledo, has been appointed mgr. of the Lackawanna Grand Trunk Line also, with office at Chicago.

V. C. Tompkins, trav. frt agt. of the Seaboard Air Line at Raleigh, N. C., has been appointed coml. agt. at that point. E. C. Hunter becomes trav. frt. agt.

J. L. McLean, milk agt. of the Chicago & Alton, with headquarters at Bloomington, Ill., has his authority extended over the Toledo, St. Louis & Western.

P. W. Morrow, trav. pass. agt. of the L. & N., at Houston, Tex., has been appointed northwestern pass. agt. at Chicago, vice H. C. Bailey, transferred.

R. D. Pinneo has been appointed asst. genl. frt. agt. of the Pacific Coast Steamship Company at Seattle, Wash. The office of northwestern frt agt. is abolished.

Robert L. Burnap, genl frt. agt. of the Central Vermont, has been appointed asst. genl. frt. agt. of the Grand Trunk, headquarters at Chicago, vice C. A. Hayes.

J. B. Morrow, trav. pass. agt. of the Frisco at San Antonio, Tex., has been transferred to Dallas, Tex., as southwestern pass. agt., vice C. O. Jackson, transferred.

D. L. Taylor has been appointed trav. frt. agt. of the Piedmont Air Line and the Asheville Line, at Boston, Mass., vice E. E. Wood, resigned. G. A. Reinhart succeeds Mr. Taylor as soliciting agt. at that point.

Guy Tombs, genl. frt. and pass agt. of the Canadian Northern Quebec, at Montreal, Que., has had his jurisdiction extended over the Quebec & Lake St. John, vice Alexander Hardy, assigned to other duties.

W. T. O'Donnell has been appointed genl. frt. and pass. agt. of the Sierra Madre & Pacific, at Madera, Mex., vice B. F. Seggerson, who continues as genl frt. and pass. agt. of the Rio Grande, Sierra Madre & Pacific.

F. C. Matthews, genl. frt. and pass. agt. of the Midland Terminal and the Florence & Cripple Creek, has his authority extended also over the Colorado Springs & Cripple Creek District.

A. S. Learoyd, div. frt. agt. of the D., L. & W., at Newark, N. J., has been appointed asst. genl. frt. agt. David M. Boyd, contg. frt. agt. at New York becomes div. frt. agt. at Newark.

G. W. Quackenbush, asst. genl. frt. agt. of the C. & A., has been transferred from Peoria to Springfield, Ill. E. C. Coffey has been made asst. genl. frt. agt. at Peoria. B. S. Carrick has been made dairy agt. at Mexico, Mo.

C. E. Gay, Jr., has been appointed coml. agt. of the Southern at Savannah, Ga., vice C. A. Emerson, resigned. Thomas B. Dixon has been appointed sol. agt. at Macon, Ga. C. S. Powers has been appointed sol. agt. at Atlanta, Ga.

J. E. Dennison, hertofore aud. of the Mexican International, the National Railroad of Mexico and the Hidalgo & Northeastern, has been appointed genl. aud. of those roads at Mexico, Mex.

George L. Connor, pass. traf. mgr., and A. C. Kendall, genl. pass. agt., both of the N. Y., N. H. & H., have retired and been placed on the pension roll, after serving the company each for forty years.

F. L. Koontz has been elected asst. sec. and asst. treas. of the Elgin, Joliet & Eastern and the Chicago, Lake Shore & Eastern, with office in the Commercial National Bank building, Chicago.

J. W. McCullough has been appointed aud. of the Colorado Southern, New Orleans & Pacific, the Beaumont, Sour Lake and Western, and the Beaumont Terminal railway, at Beaumont, Tex., vice H. M. Hood, resigned.

G. E. Marshall has been made coml. agt. of the I. & G. N. at San Antonio, Tex. M. H. Trice has resigned as asst. genl. frt. agt. at that point. L. R. Dallam has resigned as trav. frt. agt. at Ft. Worth.

T. P. Alston, sec. and supt. of the Florida Railway, has been appointed traf. mgr., with office at Live Oak, Fla. The office of genl. frt. and pass. agt., held by F. P. Woodward, is abolished.

Louis B. Houck has been appointed supt. of trf. of the Chester, Perryville & Ste. Genevieve and the Cape Girardeau & Chester. R. H. Schultz, heretofore aud. and asst. genl. frt. and pass. agt., has been appointed genl. frt. and pass. agt.

Harry Redan has resigned as trav. pass. agt. of the Southern Pacific. George S. Bruce has resigned as immig agt. E. C. Robinson and T. A. Bagnal resigned as trav. pass. and immig agts., all of Houston, Tex. These offices are abolished.

J. P. DuVinage, formerly trav. frt. and pass. agt. of the National Lines of Mexico at Chicago, has been appointed coml agt of the New York & Cuba Steamship Company, in charge of freight traffic matters, at 607 Bessemer building, Pittsburg, Pa.

J. I. Bronson has resigned as coml. agt. of the Macon, Dublin & Savannah at Macon, Ga. E. J. Burke has been

appointed trav. frt. and pass. agt. at Macon, vice **R. W. Rutherford,** resigned. **G. R. Geslin** has been appointed coml. agt. at Atlanta, Ga.

B. H. Bail has been appointed frt. traf. mgr. of the Philadelphia & Reading, Philadelphia, Newtown & New York, Perkiomen, Stony Creek, Gettysburg & Harrisburg, Catasauqua & Fogelsville, Reading & Columbia and Atlantic City railroads, with headquarters at Reading, Pa., effective on April 8.

George E. Bates, div. frt. agt. of the Delaware & Hudson at Troy, N. Y., has been transferred to Scranton, Pa., in a similar capacity. **Frank J. Forster,** sol. frt. agt. at Albany, N. Y., succeeds **Mr. Bates** at Troy. **James Fitzsimmons,** chf. clk. in the genl. frt. dept., has been appointed sol. frt. agt. in place of **Mr. Forster.**

R. S. Torrington has been made dist. pass. agt. of the Rock Island-Frisco at Detroit, Mich., vice **F. B. Gilmer,** resigned. **C. W. Root** is made trav. pass. agt. of the Rock Island at Dallas, Tex. **H. W. Pinnick** has been made trav. pass. agt. of the Frisco at San Antonio, Tex. **R. J. John** is cont. agt. of Rock Island at Houston, Tex.

C. L. Montague has been elected sec. of the Sierra Madre & Pacific, at Madera, Mex., vice **J. H. Martin,** who continues as sec. of the Rio Grande, Sierra Madre & Pacific. **D. J. Kerr** has been appointed aud. of the Sierra Madre & Pacific, vice **W. Maurer,** who remains as aud. of the Rio Grande, Sierra Madre & Pacific, both at Madera, Mex.

R. C. Kennedy, genl. agt. of the pass. dept. of the New York Central Lines at Dallas, Tex., has been appointed genl. agt. of the pass. dept. of the Lake Erie & Western at Indianapolis, Ind. **Howard C. Carson** succeeds **Mr. Kennedy** at Dallas. **W. V. Lissey,** pass. agt. at Brooklyn, N. Y., has been transferred to New York as asst. to the genl. eastern pass. agt.

The jurisdiction of **A. B. Smith,** genl. pass. agt., and of **F. C. Coley,** asst. genl. pass. agt., of the New York, New Haven & Hartford Railroad, extends over the New England Navigation Company. The jurisdiction of **R. T. Haskins,** frt. traf. mgr. of the New England Navigation Company, has been extended over the freight traffic interests of the N. Y., N. H. & H. at New York.

W. G. Knittle, genl. agt. of the pass. dept. of the Big Four at Toledo, O., has been transferred to Cincinnati as genl. agt. of the pass. dept., vice **Charles Krotzenberger,** who succeeds **C. L. Hilleary** as asst. genl. pass. agt. at St. Louis. **W. F. Carter,** trav. pass. agt. at Toledo, has been appointed genl. agt. of the pass. dept. at that point. **Austin H. Breed,** city pass agt. at Toledo, succeeds **Mr. Carter** as trav. pass. agt., and **M. P. Marsh** has been appointed city pass. agt. in place of **Mr. Breed.**

ROADWAY AND ENGINEERING.

W. C. Smith has been appointed chf. eng. of the Idaho & Washington Northern at Coeur d'Alene, Idaho, vice **L. F. McCoy,** resigned.

G. B. Hazelhurst, chf. eng., and **W. A. Walker,** rdmstr., of the Georgia & Florida, have removed their offices to Douglas, Ga., from Augusta.

J. E. Greiner has resigned as asst. chf. eng. of the B. & O. to engage in private business as consulting eng. Offices in New York, Chicago and Baltimore.

George A. DeMore has been appointed rdmstr. of the New York, New Haven & Hartford at New Haven, Conn., vice **W. M. Osburn,** resigned. **J. T. Riley** becomes track supvsr. at New Haven.

B. B. Gordon has resigned as chf. eng. of the Colorado Southern, New Orleans & Pacific and the Beaumont, Sour Lake & Western. **C. W. Fisk,** eng. maint. of way, with headquarters at Beaumont, Tex., assuming the duties of that office.

F. B. Oren has been made asst. rdmstr. of the Ill. Cent. at Princeton, Ky. **G. M. Hubbard** has been made rdmstr. at Corinth, Miss. **W. L. Love** has been made rdmstr. at Mattoon, Ill. **A. F. Blaess** has his jurisdiction extended over the Nashville div. Office at Louisville, Ky.

S. S. Oliver, auditor of the Quebec & Lake St. John, has been appointed eng. in charge of maint. of that road and the Canadian Northern Quebec; office at Quebec, Que. **A. E. Doucet,** chf. eng. of the Quebec & Lake St. John, has resigned to devote his entire time as dist. eng. of the Transcontinental Railway.

E. P. Safford, rdmstr. of the Lake Shore at Adrian, Mich., has been appointed rdmstr. at Silver Creek, N. Y., in place of **M. Connors,** deceased. **J. B. Martin** has been appointed rdmastr. at Adrian. **M. E. Cowen,** rdmstr. at Hillsdale, Mich., becomes rdmstr. at Alliance, O. **H. W. Loomis,** rdmstr. of the Lansing division, has been appointed rdmstr. of the Ft. Wayne division at Hillsdale, Mich. **T. W. Dempsey** becomes rdmstr. of the Lansing division at Hillsdale.

MECHANICAL.

E. M. Kearney has been made div. fore. of the Frisco at Francis, Okla.

Hugo Schaefer has been made M. M. of the Santa Fe at Wellington, Kan., vice **O. A. Fisher.**

G. F. Weiseckel has been made M. M. of the B. & O. at Cumberland, Md., vice **A. H. Hodges,** resigned.

R. Tawse, supt. M. P. of Ann Arbor and the D., T. & I., has moved his office from Jackson to Toledo, O.

Watt Williams has been made fore. of the M., K. & T. shops at Sedalia, Mo., vice **Jos. Severin,** resigned.

W. Cockfield has resigned as loco. supt. of the Mexican Ry. to become chf. loco. supt. of the Peruvian Ry. at Lima, Peru.

D. R. MacBain, asst. supt. M. P. of the Mich. Cent., has been made asst. S. M. P. of the New York Cent. at New York city.

F. R. Cooper has been made S. M. P. of the Kansas City Southern, vice **R. M. Galbraith,** resigned, to engage in private business at Pine Bluff, Ark.

G. T. Depuc, M. M. of the Erie, has been transferred from Hornell, N. Y., to Galion, O., vice **E. S. Fitzsimmons,** transferred to Hornell as M. M.

Paul Jones has been made trml. fore. of the motive power dept. of the Tehuantepec National at Coatzacoalcos, Mex., vice **William Rees,** resigned.

A. S. Williamson has been made mech. eng. of the Mex. Cent., office at Aguascalientes, Mex., vice **F. J. Lass,** made mech. inspector at that point.

OBITUARY.

J. N. Baldwin, genl. sol. of the U. P. at Omaha, died April 19.

John G. Wilson, genl. atty. of the B. & O., died on April 7, aged 36 years.

R. D. Miller, supt. of trmls. of the Chi. & Eastern Ill. at St. Louis, Mo., died on April 3.

George W. Dowe, formerly div. supt. of the Erie, died recently at Hornell, N. Y., aged 65 years.

George W. Fox, genl. agt. of the Erie, died at his home in Port Jervis, N. Y., on April 8, aged 62 years.

J. E. Leith, frt. claim agt. of the Frisco, and formerly genl. pass. agt. of the Tex. Mid., died on April 17.

Edward Ryan, mstr. mech. of the So. Pacific at San Antonio, Tex., died on April 9 at Boston, Mass., of pneumonia.

H. W. Watts, mstr. car bldr. of the Monongahela Connecting Railroad, died on April 13 at Pittsburg, Pa., at the age of 57 years.

Wm. Murray, foreign pass. agt. of the Ill. Central, with headquarters at New Orleans, La., died in that city on April 3, at the age of 65 years.

Oscar L. Teachout, formerly genl. agt. of the mail dept. of the Missouri Pacific, Texas & Pacific, St. Louis Southwestern and International & Great Northern, died at his home in Adrian, Mich., on April 5, aged 67 years. **Mr. Teachout** was the very first subscriber to the Railway Journal.

The railroads of Texas are to be congratulated for their successful fight on the ticket brokers in that state. For two years the roads have made an aggressive fight to stop this method of dealing in tickets and gradually they gained ground, till early last month the last ticket brokers to hold out against the contest, at El Paso, gave up the fight and have quit the business. The traveling public of Texas is to be congratulated also for this victory on the part of the railroads. It is gratifying to know that the ticket brokerage business has been gradually waning in all parts of the country, and save a few of the larger cities, it is practically an enterprise of the past.

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Official Organ, RAILWAY JOURNAL, Chicago, Ill.

BY WHAT METHOD COULD FOREIGN CARS BE HANDLED THAT WOULD BE AN IMPROVEMENT OVER THE PRESENT PER DIEM SYSTEM.

(TOPIC NO. 3, DISCUSSED AT RECENT N. A. R. A. CONVENTION.)

OPENING PAPER BY C. MORRISON.

"DEFINITIONS."

Home Car—A car on the road to which it belongs.

Foreign Car—A car on the road to which it does not belong.

Private Car—A car having other than railroad ownership.

Home—A location where a car is in the hands of its owner.

Home Road—The road which owns a car, or upon which the home of a private car is located.

Home Route—The line of intermediate roads over which a foreign car was moved from home.

Home Junction—A junction with the home road.

Home Route Junction—A junction on the home road.

Switching Service—The movement of a car to be loaded or unloaded, or the movement of a car between railroads at a charge for the service rendered, within designated switching limits, the road performing the service not participating in the freight rate.

Per Diem Rules—Governing Settlement for the Use of Freight Cars.

1. The rate for the use of freight cars shall be 50 cents per day, which shall be paid for every calendar day, and shall be known as the per diem rate.

2. Days shall be reckoned by subtracting the date of receipt from the date of delivery. The day of receipt should be disregarded, and payment made for day of delivery.

A road receiving and delivering a car on the same date shall not pay the per diem for that day.

3. (New.) A road shall have the right to demand the return of its cars in accordance with rules.

1st. Foreign cars must be promptly returned to their owner and must be handled as prescribed by rules.

Foreign cars should be loaded so that the home road will participate in the freight rate, or loaded to the road from which received or loaded to an intermediate road in the direction of the home road.

4. Cars received loaded in switching service must be confined to switching territory, and when made empty must be returned to the owner, if a direct connection within that territory or otherwise to the road from which received.

5. An arbitrary amount for each car in switching service may be reclaimed by the switching line from the road for which the service was performed. This amount shall be based upon the average number of days actually required, and determined by the roads directly interested for each local territory.

6. In case a road delivers an empty foreign car without the consent of the owner to a road which does not pay per diem, or if a road permits the loading or reconsigning of a foreign car without the consent of the owner to such a road, it will be responsible to the owner for the payment of an amount equal to the per diem accruing on the car while on such road.

9. The interchange reports shall close at midnight, and shall include all cars exchanged upon the date named, unless otherwise noted thereon. The sheets of these reports shall be numbered consecutively, beginning with the first of each month.

In cases where there are different standards of time at junction points, the time of the more easterly reckoning shall be used.

The interchange reports to the car record office from junction points must be signed by the agent or other authorized representatives of both roads, on the prescribed form, the receipt of cars delivered being thereby acknowledged. Car Service Rule 5 governs the delivery of cars thereon; interchange tracks of connecting lines shall, prima facie, be the time given by the delivering road.

Car Service Rule 5—Cars shall be considered as having been delivered to a connecting railroad when placed upon the track agreed upon and designated as the interchange track for such deliveries, accompanied or preceded by proper data for forwarding and to insure delivery, and accepted by the car inspector of the receiving road.

Unless otherwise arranged between the roads concerned, the receiving road shall be responsible for the cars, contents and per diem after receipt of the proper data for forwarding and to insure delivery and until they have been accepted by its inspector or returned to the delivering road.

(Note.—The character of the necessary data will be determined by each receiving road in accordance with the conditions of its service.)

13. When reclaims are made for allowances under Rules 14 and 15, or on account of special conditions, they must be made by the designated transportation officer of the road which pays the per diem to the designated transportation officer of the road from which the allowance is reclaimed.

14. A road failing to receive promptly from a connection cars upon which it has laid no embargo shall be responsible to the connection for the per diem on cars so held for delivery, including the home cars of such connection.

If such failure to receive shall continue for more than three days, the delinquent line shall thereafter, in

addition, be responsible to the connection for the per diem on all cars, wherever in transit, which are thus held back for delivery.

It shall be the duty of a connection intending to reclaim such per diem allowance to notify the delinquent line daily of the total number of cars so held for it, and, when required, to furnish the initials and numbers of the cars.

15. When a road gives notice to a connection that, for any reason, it cannot accept cars in any specific traffic, thereby instructing an embargo, it should receive cars already loaded with such traffic at the time such notice is issued, and cars loaded within twenty-four hours thereafter. If it does not receive such cars, the road holding them may reclaim per diem from the road placing the embargo for the number of days such cars are held, not exceeding the duration of the embargo.

Twenty-four hours after the date of the notice, a road must not load or reconsign cars in such traffic to the road issuing the notice.

All such notices must be given by telegraph by the embargoing road to its immediate connection and by it transmitted as may be necessary.

16. These rules shall not apply to private cars.

In conclusion, I wish to say that the present per diem rules and rates are satisfactory to all the lines at this time. We also find that the 50-cent-per-day cars make the agents on the line I represent get up and hustle. The successful agent should call on the consignees daily in reference to releasing foreign cars. He also should make several trips each week through his yard for the same purpose. He will, without a doubt, find some foreign cars tucked away on some siding still drawing that 50 cents per day. Then, again, the agent should select a good yardmaster. Then you can prevent criticism, providing, of course, if you assist him. We find this to be a fact with us at this time, and for the last two years, under the management of our yardmaster, we have been successful, and we believe him to be one of the very best on our system; and, from our standpoint, we believe he will not always be a yardmaster—something better in store for him. So it is with the live agent.

The lazy agent's per diem is the old mileage basis. "Oh, well," he says, "we pay so much per mile. Let it lie. We do not have to pay only when the car is moving."

STATION AGENT'S FIDELITY AND LABORS.

BY W. W. WAGNER.

Are the station agent's fidelity and labors for his employers' interests duly considered in comparison with the services of other railway employes?

Nearly all the leading railroads of the country publish papers or magazines for the dissemination of useful knowledge among their employes. They are, as a usual thing, breezy publications deserving of considerable commendation. Through their columns the officers are enabled to come into closer touch with the rank and file of the system, carefully watch and chronicle their meritorious acts, and by thus giving public recognition to duty well performed, awaken new interest among them in their work, make them feel that probably the routine through which they are passing every day is of more importance than they attributed to it, and that if they keep plodding along, always wide awake to their company's intent, that sooner or later their efforts are bound to be noticed and appreciated.

But yet, as you glance at the role of honor they publish month after month—read of this operator, that brakeman, this conductor, and that yardmaster, who has kept his eyes open and been keenly alert to his opportunities until he has finally caught the eye of his superior officer and, by some important action has had his name placed upon the roll of honor, and his achievement read about by all his comrades, you cannot help but have this thought impress itself upon you: "Why is it that in the immense army who comprise the agents and clerical forces of these roads, no one ever rises above the mediocre—ever does anything worth mentioning?" An operator discovers a broken wheel in a train, immediately telegraphs ahead, and possibly averts a serious wreck thereby, saving the company considerable loss. The eye of his superiors is immediately forced upon him, his action appreciated, and his name placed upon the credit roll as it should be. He deserves credit and gets it.

But to revert to the clerk. A cashier watches his accounts and work closely, keeps in constant touch with all his debts and credits, is interested in making his collections promptly, keeps well posted in regard to the financial standing of all firms credited so as to protect his company against loss by failure or otherwise, and promptly notifies his superior officers of any financial storms brewing among its patrons. You say he is simply doing his duty. So is the wide-awake operator only doing his duty, but is he counted any less deserving of credit for it? No, and he gets it.

Now take the agent. Upon his promotion he realizes the grave responsibilities placed upon him—that he is the general freight agent, the general manager, and everything else as far as his road is concerned at his station, and that his road will be judged by his ability to discharge his obligations. It stands in the community very much as he stands. So he starts out to faithfuly work for its interest. He never disparages his system, but tells the shipping public of the many good things it is constantly doing to build up the community in which they reside, that his officers realize that the shippers' success is their success, and the only way his line can develop is through their prosperity, and so inoculates them with the idea that when his state legislature attempts adverse legislation, his shippers are at his back to offset it. He not only keeps in touch with every phase of business, and has a large personal following in his town, but watches and carefully follows the instructions of his many superior officers as well—keeps them posted in everything of interest, renders his reports promptly and effectively, and by his close application to duty, constantly widens his practical knowledge of railroad operation in both the office transportation and auditing lines; and yet, in spite of it all, his efficiency is scarcely even recognized, and never commented upon; and when an opening occurs to which he is justly entitled to promotion, some general office man is frequently chosen, who is inferior in experience and possibly in ability as well.

You ask why does this condition prevail? I think it can be answered in one sentence—lack of organization. The forces that are recognized, whose achievements are published and commented upon, are those that have a thorough organization at their back, and which fact, more than anything else, forces official attention upon them. The railway officers, in watching the orders of those organizations to discover their aims and objects,

at once discover their merits. Were the agents as thoroughly organized, the official eye would be immediately trained upon them; the broadening influences through which they have been passing would be more thoroughly comprehended and appreciated, and instead of the impression prevailing that they were not eqiupped for more desirable positions, on account of a too limited experience, they would be found out to rank with the general office man, and would therefore receive the much merited promotions.

Surely it is discouraging for the agent to thus be forced to believe that his unquestioned loyalty and fidelity to his company's interests, at all times, is seemingly but little aid to his advancement, and even the cause, perhaps, of his superior officers' indifference to a just recognition of his merits. It is known to railway officials that the agents never go on a strike.

THE LOCAL STATION AGENT.

BY W. P. HALL.

CANTO I.

Of all the world's trials and contentions, I guess,
The worst I've struck are in handling freight and express.
If I make a mistake, they say I have no sense,
And the next train in brings me a bill of expense.
If I don't ante up like a good agent should,
Why, then they send me a pass down over the road,
And say to me, "Go 'way back and work on a farm,
Where you are out of the way and can do no harm."
And the questions they ask and the things that they write
Almost turns a man's hair gray in one single night.

CANTO II.

I scrub the floors and clean the lamps,
And tidy up the station.
I'm out in chills and fogs and damps,
For 'tis my occupation
To keep a railway station straight,
And do the baggage checking,
To sling the mails and bill the freight,
The while my food I'm packing.
Yes, I'm an all-'round station fellow,
A pumper, and tend a switch,
Ticket seller, handy feller,
And I don't know mostly which.

C. A. HAYES' PROMOTION.

The appointment of C. A. Hayes to be general freight agent of the Grand Trunk Railway at Montreal, Canada, is a selection by his superiors regarded as eminently proper by those who know him. His occupancy of the office of assistant general freight agent in Chicago for several years past has been effective and has brought his line into confidence and popularity with the public. Before coming to Chicago, the new general freight agent was connected with line interests of affiliated relations with the Grand Trunk system and the policy of the company was well known to him. His location in Chicago was for the purpose of giving a more efficient administration to its affairs, and having ably brought this about, his scope of operations is to be much increased by his promotion. Much regret has been expressed that Mr. Hayes is to leave Chicago, by his many personal friends, tempered, however, by the fact that in going to the chief office of his company he takes with him a clear knowledge of the conditions here. As he is a young man in active years, his future advancement to the top round in the ladder of railway work seems probable.

CONSTRUCTION AND IMPROVEMENTS.

The Illinois Central has completed its line into Birmingham, Ala.

The Norfolk & Western is completing a belt line around Lynchburg, Va., which will be about 22 miles long.

Surveys are being made on the New Orleans, Fort Jackson & Grand Isle from Myrtle Grove to St. Denis, La., 15 miles.

T. D. Wagner, of Lindsay, Okla., is promoting a line between that point and Oklahoma City, known as the Oklahoma & Texas.

The Galveston Terminal proposes to make extensive track extensions in and about the city of Galveston for the Rock Island-Frisco lines.

The Texas Southeastern proposes to issue bonds for the purpose of building 35 miles of road. W. J. Raef of Diball, Texas, is general manager.

The Toledo, St. Louis & New Orleans is a new line projected between Effingham and Carmi, Ill., 140 miles. D. Reid of Marion, Ill., is vice-president.

The Kansas City Southern will expend about $250,000 on track improvement and new bridges, etc., in Oklahoma. Heavier steel rails replace the old rails.

W. H. Carlson of Los Angeles, Cal., is president of the new line projected between Los Angeles and Hermoso Beach, Cal. Construction work has commenced.

A political effort is being made to get the Western & Atlantic, a property of the State of Georgia, to extend from Atlanta to some seaboard point in Georgia.

The Mexican railway proposes to make extensive terminal improvements at Vera Cruz, Mex. Wharves, warehouses, yards, etc., are among the proposed construction work.

The Santa Fe has completed a cut-off between Panhandle and Amarillo, Texas, 25 miles. The company has abandoned the line between Panhandle and Washburn, Texas.

The W. K. Palmer Company of Kansas City, Mo., Dwight building, is interested in a proposed extension of the Rockport, Langdon & Northern from Rockport, Mo., to Shenandoah, Ia.

The Glenville & Kanawha proposes to build 27 miles between Glenville and Weston, W. Va. Lloyd Rinehart of Weston, W. Va., is president, and Robert L. Ruddell is general manager.

A number of citizens of Leesville and Shreveport, La., are promoting a line to be built from Alexandria to Leesville, La., and Mr. J. Farrow, of the latter point, has the contract for construction work.

George C. Wallace, of Paducah, Ky., is president of the Paducah & Northern, which proposes to construct a line from Paducah to a point on the Ohio river opposite Metropolis, Ill., about ten miles.

Surveys are being made for the Colorado, Columbus & Mexican, which is to be built from Columbus, N. M., to the San Juan and Durango coal fields, via Silver City. A. O. Bailey is president, office at Columbus, N. M.

The city council of Seattle has granted the Oregon & Washington, a Harriman line, franchise for terminals, depots, tunnel work, etc. The franchise requires the road to expend at least $500,000 inside of a year.

Application has been made to the Mexican government for a concession to build an international bridge across the Rio Grande to connect Brownsville and Matamoras. The proposed bridge will be used for a railroad, an electric railway, vehicles and foot passengers.

The Santa Fe and the Missouri & North Arkansas have purchased extensive properties in Joplin, Mo., on which they will build a union station and make other terminal improvements. Neither of these lines have built to Joplin, but it is their purpose to do so soon.

The Denver, Northwestern & Pacific, which is building a 68-mile extension from Yarmony to Steamboat Springs, Colo., 68 miles, has a portion of the grading done and proposes to increase the construction force this season. Mr. H. A. Sumner of Denver is chief engineer.

The Imperial Valley has acquired control of the Sugarland railway, and it is the intention to make extensive extensions soon. The Imperial Valley is building 30 miles between Imperial and Hempstead, Texas. W. T. Eldridge of San Antonio, Texas, is at the head of these properties.

The Roscoe, Snyder & Pacific, which is proposed to be built from Roscoe, Texas, to Portales, N. Mex., has about 30 miles of road out of Roscoe ready for operation. The road is to be completed to Fluvanna, Texas, 48 miles, this season. The general officers are at Abilene, Texas. F. W. James is president.

The Cairo & Norfolk is the name of a new road proposed to be constructed through Kentucky from the Mississippi river east to Norfolk, Va., about 850 miles. The president and prime mover of the road is L. W. Goode, of 111 Broadway, New York. It is understood that work will be started soon.

A representative in Congress introduced a bill on April 9 requiring every common carrier engaged in interstate commerce by railroad to maintain its roadbed, tracks, bridges, ties, etc., in a safe and serviceable condition. Under the bill the Interstate Commerce Commission is empowered to enforce its provisions.

According to a report coming from Winnipeg, the Canadian Pacific has decided to build a second line through the Rocky mountains to the Pacific coast. Land on Hardy bay in the northern part of Vancouver has been secured as a terminus. The road will connect with the line running from Winnipeg, Man., to Edmonton.

A press dispatch from Norfolk, Va., says: "Standard Oil and Rockefeller interests have become identified in a large financial way with the Norfolk & Southern, owning over 200 miles of valuable railroad property through the extensive lumber districts of East North Carolina and the original plans for further development of the road, including the building of the longest railroad bridge in the world over Albemarle sound, will now be carried out."

The San Diego & Arizona is a proposed line to be built between San Diego, Cal., and Yuma, Ariz., 300 miles. E. J. Kallright of San Diego is chief engineer. A dispatch from Mexico City says: "John D. Spreckels, the millionaire California steamship and railroad man, left for home tonight after having secured from the Mexican government a concession granting him the right to build his Yuma-San Diego railroad through Mexican territory for a distance of fifty miles."

A. E. Stilwell, president of the Kansas City, Mexico & Orient Railroad, announced on April 8 that all of the money had been subscribed to finish the building of the railroad between Wichita, Kan., and Sweetwater, Texas, a distance of 432 miles. The road is now built except for a sixty-seven-mile gap between Benjamin, Texas, and the Red river, and the bridge across the Red river. The road will be in operation some time in August. Construction is now proceeding on the sixty-seven-mile gap and work is being done on the Red river bridge. The steel rails to build between Benjamin and the Red river are now on their way to Sweetwater. The company has also 365 miles in operation in Old Mexico.

A press dispatch from Hereford, Texas, of April 5, says that at a mass meeting of the citizens of Deaf Smith and Castro counties held here a contract was made with the Cullen Construction Company of Newark, N. J., for the construction of a new railroad, known as the Colorado, Hereford and Gulf, which is chartered from the north line of Dallam county to San Angelo. The Cullen Construction Company furnishes a liberal guarantee to construct the railroad so as to connect the line with the Rock Island Railroad within twelve months and with the Texas & Pacific at some point on that line within two years. Actual construction is to begin within sixty days, working north and south from Hereford simultaneously.

The Interstate Commission has issued a report showing the extent of the block signals used on the roads in this country, the report having been compiled by the Block Signal and Train Control Board at Washington. According to this report there were up to February 23, 1907, 58,678.7 miles of steam roads operated under block signals. Only about twenty-five lines have one hundred per cent of their mileage operated under the block system, and quite a number of other roads have over fifty per cent under the block system. There are very few lines which have no mileage thus operated.

Even Russia has at last awakened to the folly of state ownership of roads. Mr. M. Kokesoff, the minister of finance, stated to the finance committee in the douma that he decided that it would be preferable to attract capitalists for this work by offering them certain guarantees. He is opposed to the state undertaking further railway construction. As Russia has had considerable experience with railway construction and operation, hence this stand indicates that they are satisfied to let this enterprise to private companies. Their experiences should bear some weight in this line of argument.

The executive head of the Republic of Mexico always keeps a watchful eye on the development and operation of transportation systems of his country. In his recent message to the Mexican congress, President Diaz had the following to say relative to railroads of Mexico for the first six months of the current fiscal year:

The additions to the railways under federal jurisdiction have aggregated 462 kilometers, the total length of these railways at the present time being 18,386 kilometers, and adding the length of railways under the jurisdiction of the states and private lines, which is 4,436 kilometers, the total length of the nation's system of railways is found to be 22,322 kilometers or 14,150 miles. The receipts of the Tehuantepec National railway have continued to grow, due to the new freight traffic. From July to December, 1906, the earnings of the line were $562,000, and in the corresponding period of 1907 they amounted to $1,972,000, showing an increase of $1,410,000.

RAILWAY STOREKEEPERS' CONVENTION.

The Railway Storekeepers' Association will hold its fifth annual convention at Chicago, Ill., at the Auditorium hotel, beginning May 25. The following are the topics and committees:

"Standard Scrap Classification List"—J. P. Murphy, J. M. McCarthy, G. R. Ingersoll, A. C. Mann, T. J. Frier, H. E. Rouse.

"Mechanical Contrivances at Shops for Distributing Supplies from Storehouses Direct to Workmen"—H. A. Anderson, R. L. Morris, D. A. Williams, J. H. Waterman, F. D. Reed.

"Classification of Material"—I. R. L. Wiles, F. D. Reed, F. A. Bushnell, L. A. Williams, T. W. Flannagan.

"Amendments to Constitution"—W. F. Jones, F. D. Reed.

E-1. "Economy in General Operation"—"System," N. M. Rice; "Recommended Practices," H. E. Rouse; "Storekeeper's Function," D. B. Allan; "The Store Department as an Aid," W. T. Bates; "Reclaiming Materials," I. J. Custer, E. E. Wilson; "Surplus Materials, Redistributing, Using or Disposing of," J. W. Taylor, T. A. Fay; "Direct Shipments in Distribution," Charles O'Connor.

E-2. "Tools and Supplies Furnished Locomotive and Train Crews: What Can Be Done to Reduce the Expense?"—A. T. Sexton, C. B. Foster and C. L. Warner.

E-3. "The Real Purpose of the Stores Department"—H. C. Pearce, James Osborne, general superintendent Canadian Pacific.

E-4. "Detailed Store Department Organization—Manner of Forming, Proper Time to Organize, First Step, Construction Material, Commissary Stores, Handling Supplies on a 500-Mile Railroad"—F. D. Reed.

E-5. "Caring for Electrical Material and Supplies"—W. F. Jones, W. J. O'Connor and J. A. Laughlin.

E-6. "Is It Practicable and Economical to Operate a Railroad on a Thirty Days' Stock of Materials?"—D. A. Williams and J. H. Callaghan.

T-E-1. "The Student in the Storehouse"—J. H. Waterman

T-E-2. "What is the Actual Cost of Handling Railway Materials?"—H. C. Chandler.

T-E-3. "How Best to Interest the Mechanical Department in Substituting Material Where Standards Are Not Available"—W. E. Fowler.

T-E-4 "Construction of the Panama Canal"—W. G. Tubby.

T-E-5. "Stationery Department"—L. R. Stafford

MECHANICAL

NOTICE.—Communications are requested for publication relating to locomotive and car designs and equipment; also to special tools to facilitate shop work, or any subject tending to promote the efficiency of the Mechanical Department of railways. All practical men are earnestly requested to contribute early notices of official changes and additions of new equipment for the road and shop, both by purchase and construction.

Description of novel and meritorious devices recently designed that are of general interest will be published in our reading columns free of charge.

All communications relating to this department must be addressed to the Mechanical Editor, Railway Journal, 66 Sherman Street, Chicago, Ill.

THE GENERAL FOREMEN'S CONVENTION.

The International Railway General Foremen's Association will hold its fourth annual convention at Chicago, Ill., beginning May 25. This promises to be a largely attended convention. An excellent program has been prepared, which will be thoroughly discussed.

President Fay informs us that the convention of the International Railway General Foremen's Association is to be addressed by the following prominent railway mechanical officials: Mr. W. L. Kellogg, master mechanic of the Pere Mar-

E. F. FAY, PRES. INT. RY. G. F. ASSN.

quette; C. A. Seley, mechanical engineer of the Rock Island, and J. F. DeVoy, mechanical engineer of the Chicago, Milwaukee & St. Paul.

He also states that arrangements have been made to devote a portion of Thursday afternoon of convention week to a demonstration exhibit of Thermit welding by the Goldschmidt Thermit Company.

Those who are eligible to active membership in the association are superintendents of shops, general foremen, machine shop foremen, division foremen, roundhouse foremen and assistants.

The officers of the organization are as follows: President, E. F. Fay, Union Pacific, Cheyenne, Wyo.; first vice-president, Lee R. Laizure, Erie, Hornell, N. Y.; second vice-president, W. E. Farrell, Big Four, Columbus, Ohio; third vice-president, J. J. Houlihan, Wabash, Fort Wayne, Ind.; fourth vice-president, G. W. Keller, Norfolk & Western, Portsmouth, Ohio; secretary, E. C. Cook, 506 Royal Insurance building, Chicago; treasurer, Frank Hunt, Erie, Susquehanna, Pa.; chairman of executive committee, C. H. Voges, Big Four, Bellefontaine, Ohio.

The following is the list of topics to be discussed at the coming convention:

1. The pounding of the left main driving box in preference to the right. What causes the pounding, and how could it be avoided? C. H. Voges, chairman, Bellefontaine, Ohio; E. R. Berry, Galesburg, Ill., and W. H. Kidneigh, Grand Island, Neb.

2. Modern shop construction, cross pits or longitudinal? Location of wash rooms and lavatories. Best location for each department. Care of shop order material and convenience of storage. L. H. Bryan, chairman, D. & I. R., Two Harbors, Minn.; D. E. Barton, Topeka, Kan.; L. R. Laizure, Hornell, N. Y., and E. F. Fay, Cheyenne, Wyo.

3. Reporting work versus engine inspection. Should either be discontinued, or are both methods essential? S. A. Moore, chairman, U. P., Cheyenne, Wyo.; M. B. Warne, Fayetteville, Ark.; A. E. Thomas, Oelwein, Iowa; J. C. Wilkinson, E. B. Turner, Danville, Ill.

4. The apprentice question. How can we obtain the right kind of material, and how can we keep them interested? The benefit of night schools for apprentices maintained at company's expense. Does company obtain sufficient benefit to warrant this expenditure? A. O. Berry, chairman, L. S. & M. S., Elkhart, Ind.; H. J. Carrier, Huntington, Ind.; W. C. Groening, P. M., Grand Rapids, Mich.; W. G. Larmour, Norfolk, Va.; W. Pohlman, Middletown, N. Y.

5. The mileage of a locomotive. Its relation to cost of shop and running repairs. Does it pay to overhaul an engine that will give but ninety days' flue of fire box service? How should this be handled? Who should determine when to shop an engine, and who should furnish the work report? E. C. Hanse, chairman, S. A. L. Ry., Savannah, Ga.; G. E. Bronson, Colorado Springs, Colo.; George Moore, Moncton, N. B.; E. C. Marsh, Portsmouth, Ohio; Charles Paskesen, Alamogordo, N. M.

6. Why do staybolts break more frequently on left side? A. Bradford, chairman, Big Four, Urbana, Ill.; H. S. Briskley, Alamogordo, N. M.; B. Buzzell, Poplar Bluff, Mo.; W. H. Clough, Hammond, Ind.

7. The quick dispatching of engines at terminals, and how to handle most economically. D. E. Barton, chairman, Santa Fe Ry., Topeka, Kan.; G. W. Keller, Portsmouth, Ohio; F. W. Rhuark, B. & O., Holloway, Ohio; William Moore, Carbondale, Pa.; E. G. Brooks, Whistler, Ala.

8. Which is the cheaper to maintain—the piston or slide valves? W. E. Farrell, chairman, Big Four, Columbus, Ohio; Ben Beland, Springfield, Mo.; Joe Clough, Frisco, Oklahoma, Okla.

All railway mechanical officials and foremen are welcome to the convention and to take part in the discussion of topics. The object of the organization is to promote the mechanical branch of railway service, and it is through the mutual exchange of ideas that better results are obtained in this field of the service. Conventions of this nature are valuable institutions and deserve the personal co-operation and best thoughts of all the railway foremen and the encouragement of the management of the roads.

THE LEXINGTON HOTEL.

LEXINGTON HOTEL, CHICAGO

In 1907 the International Railway General Foremen's Association held their annual convention at the Lexington hotel, cor-

ner of Michigan boulevard and Twenty-second street, Chicago. The fact that the convention is to be held at the same hotel again this year is an evidence that the members were highly pleased with the excellent treatment accorded them last season. This hotel is under the management of expert hotel men, who know how to cater to the tastes of the most fastidious and know how to anticipate the wants of the traveling public. As a convention headquarters it has been popular for years. The hotel is amply equipped with a convention hall, committee rooms, parlors, etc. Besides making reasonable rates Manager Criley has also granted free use of the convention hall and committee rooms. Convenient arrangements have been made also for exhibits. As to the dining service it is par excellent. A table d'hote luncheon will be served each day of the convention for members at a charge of 50 cents each and a la carte orders at reasonable rates. The rates for rooms are $1.00 per day and up; double, $1.50 per day and up. European plan, without bath; with bath, $2.00 per day and up; double, $3.00 per day and up.

VALVE-SAVING DEVICE.

Mr. Matt Christman, foreman of the Frisco shops at Springfield, Mo., is the author of a new valve-saving device for air and liquid pumps, for which he has applied for a patent. Figure 1 shows the valve, bushings and reversing rod as same would be applied in the pump head. Figure 2 shows the bushings,

FIG. 1.

which are made in two sections, with the inner bushing made of cast iron and the outer bushing, which is made of wrought iron. "The bushing," says Mr. Christman, "can be made in one piece, but it is preferable to have it made in two sections, because, as the inner bushing wears out, it can be renewed at a small cost, and the outer one can be used again." There is a steam passage between the inner and outer bushing to allow the steam to pass into the inner one, and at each end of the inner bushing there are port openings to admit steam to the valve.

Figure 3 shows the valve removed from the bushing. This is a piston valve, and is made hollow, with openings at each end, to permit steam to pass through the valve which balances the valve. At each end of the valve there are two packing rings,

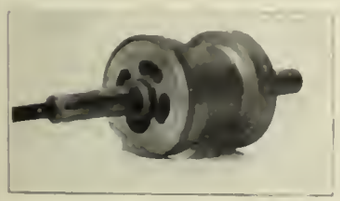


FIG. 2.

FIG. 3.

to make it steam-tight, thus preventing the steam from blowing through into the ports. Around the outside of the valve there is an exhaust cavity, to allow the steam to be exhausted. This valve is so constructed the reversing rods now in use can be applied without making any changes in the pumps and heads of No. 2, No. 5 and No. 6 New York air brake.

To use the valve and bushing in a Westinghouse air pump, there would have to be made some changes in the top head. The valve can be made out of steel or malleable iron and will outwear the air pump. Most engines now in use on a great many railroads carry a high pressure of steam; this forces the slide valve onto the seat in the bushing, which makes the valve and seats wear out and blow through the ports. Then follows poor results from the pump. As the reversing rods get bent and pound themselves into the valves, they loosen up the reversing plates. With the piston valve, the steam is equal on both sides of the valve and turns in the bushings as it moves up and down, wearing the packing rings and bushing equal. Mr. Christman states that the set of valves and bushings he has applied on a No. 2 duplex air pump is giving satisfaction.

PREMIUM FOR MERITORIOUS WORK.

Editor RAILWAY JOURNAL:

Merit for efficiency of workmanship, both as to quantity and quality, compensated for by some premium of financial value, has proved and is proving to be one of the greatest expense savers the railroad companies of the United States have ever experienced.

I do not mean to say that all roads have tested the paying of a premium or bonus for efficient work done. In fact, very few have; but I do mean to say that those which have tested it have realized the greatest results for the least expense with greatest harmonious feeling between employe and company that they have experienced in the history of their existence.

Good results may be obtained from a bonus system conducted on very different plans; for instance, I would call your attention to the system termed "piece work," now used on many of the leading roads of the Union, but more especially on the Pennsylvania Lines, one of the largest, most popular, most accommodating and best managed railroads. This road has for so many years successfully conducted the piece work system that any proposition to again adopt the old hourly rate of pay would no doubt meet with defeat.

Another system whereby a premium is paid for meritorious work is what is known as the "bonus system," a system now standard in car and locomotive shops on the Santa Fe from Chicago to the Pacific and Gulf. This plan is based on a standard time for each individual operation and has for its incentive a reduction of cost in terms of time with quality of work able to stand test under the most strenuous use and rigid inspection. Proof that the plan has affected the original purpose in view is vouched for from the fact that the results attained have greatly exceeded the expectations of those in charge.

Under the management of Mr. H. W. Jacobs, Assistant Superintendent Motive Power, improvements have been and are being made from time to time which result in the greatest good both to the company and employe, thus bringing about a more harmonious feeling between them. Increased interest on the part of workmen creates within them the sentiment of loyalty towards the company, and at the same time increases the net earnings of employer and employe.

Efficiency of mechanical operations, determined by quality and cost of performance, singles out and pays the deserving mechanic for meritorious work accomplished. It further singles out and conspicuously exposes the man who by reason of his inability successively falls below the standard, thereby costing the company much more, both in money and delay to work. Many roads are making investigations with a view of installing some plan of bonus system, and within the next few years prospects promise that the idea will be widely spread.

CHAS. J. DRURY,
Santa Fe, La Junta, Colo.

CONSOLIDATION TYPE LOCOMOTIVES FOR CENTRAL RAILROAD OF BRAZIL.

During the year 1907 the Baldwin Locomotive Works built fifteen lococomtives of various classes, for the Central Railroad of Brazil. Included among these engines were two of the consolidation type, which are equipped with smoke box superheaters, and are among the heaviest locomotives thus far shipped to South America by the builders. The tractive force of this design is 33,720 pounds, and as the weight on the driving-wheels is 144,090 pounds, the factor of adhesion is 4.27.

This locomotive is built for a track gauge of 5 feet 3 inches, and the increased space between the wheels has been utilized to good advantage. The frames are spaced 51 inches between centers, and the fire box is placed above them. As the width of the grate is 48¼ inches, a grate area of 35.5 square feet is secured with a furnace only 106 inches long. The boiler is built with a sloping back head and roof sheet, and the side water legs are free from abrupt changes in direction. The inside fire box is of steel, and is radially stayed with one angle bar supporting the front end of the crown. The boiler barrel is

straight topped and is built up of two rings. The superheater is installed entirely within the smoke box, and only the waste gases are utilized for superheating purposes. The steam pipe eone is of ordinary eonstruetion, delivering steam to two cast steel drums or headers, which are placed right and left in the upper part of the smoke box. Similar lower drums, communicating with the live steam passages leading to the cylinders, are also provided, and each upper drum is connected with the eorresponding lower drum by curving rows of tubes which follow the contour of the smoke box shell. The steam in passing from the boiler to the cylinders, flows suecessively through different groups of tubes, and thus absorbs, as far as possible, the heat stored in the waste gases. The smoke box is lagged and jacketed.

The frames are of forged iron with braces welded in plaee. They measure 4 inches in width throughout and are provided with double front rails. The first and second pairs of driving-wheels are equalized with the leading truck, whieh is of the usual swing bolster type. The truck wheels are steel tired with wrought iron spoke centers. The driving wheels have cast steel centers, and the driving boxes are of steeled cast iron.

The cylinders are single expansion, equipped with balanced slide valves. The valve gear is of the Stephenson type, and the link bloeks are connected to the rock shafts by transmission bars whieh span the second driving axle. Tail rods are fitted to the pistons and the crossheads are of the Laird type with cast steel bodies and phosphor bronze gibs. The equipment ineludes two sand boxes with air sanders, automatic air brakes with train connections, and the LeChatelier water brake on the cylinders. The eouplers and spring buffers are arranged in accordance with the railway company's standards. The tender

CONSOLIDATION LOCOMOTIVE OF BRAZIL CENTRAL.

is provided with an iron frame, and the trueks are of the equalized pedestal type. A roof is plaeed over the forward end of the tank for the protection of the fireman.

In using superheated steam it is possible to rednce the boiler pressure without loss of economy, and in engines under notice the safety valves are set at 175 pounds. This should result in eonsiderable saving in boiler maintenanee.

These engines are in freight service on grades of 2 per cent in eombination with eurves of 750 feet radius. The minimum curves on the line have a radius of 590 feet. The loeomotives are among the most recent of a long series supplied to the Central Railroad of Brazil by the Baldwin Loeomotive Works, and are good examples of heavy power built for export.

The general dimensions are as follows:

Gauge, 5 ft. 3 in.
Boiler, steel, diam. 74 in.
Fuel, Cardiff coal.
Tubes, iron, 2¼ in.—287.
Tubes, length 14 ft. 3½ in.
Total engine weight, 163,890 lbs.
Total engine and tender weight, 254,000 lbs.
Capaeity tender, 7 tons coal, 4,500 gallons.
Cylinders, 21½ x 26 inches.
Heating surface, tubes, 2,398.7 sq. ft.
Heating surfaee, fire box, 152.2 sq. ft.
Grate area, 35.5 sq. ft.
Driving wheels, diameter, 53 in.
Driving wheels, base, 15 ft. 3 in.
Total engine base, 23 ft 1 in.
Engine and tender base, 49 ft. 5 in.

THE FIRST LOCOMOTIVE.

The question has often been asked as to what was the first engine, and when used. Historical statements vary on this point. To give something like authentic information on this, we quote as follows from the Cyclopædia Americana, whieh says:

"Although there were numerous predietions and suggestions of steam-propelled carriages, notably those of Sir Isaac Newton in 1680 and of others, the first loeomotive that deserves the name was that of Richard Trevithick in 1803. True, Cugnot made a steam-driven road wagon in 1769 and Murdoek in 1784, but Trevithick was without doubt the father of the locomotive. He found that plain wheels had suffieient adhesion and that cogs were unnecessary; he used high pressure steam; he turned the exhaust into the stack, and, on diseovering its effect on the fire, called it the 'blast pipe.' His first engine had four wheels, all drivers four feet six inches in diameter. The boiler was six feet long and had a return flue, bringing the chimney or staek at the same end as the fire door. There was only one eylinder, but the length made up for two, as it was eight inches in diameter by fifty-four inches long. Unfortunately, eireumstanees prevented Trevithick from following up the development of the locomotive, and as a consequence many of his ideas have been eredited to others. Between Trevithiek's engine and the Roeket (1829), which is sometimes called the first locomotive, men had not been idle by any means. Blenkinsop in 1812, Hedley with his Puffing Billy in 1813, Stephenson's Blucher in 1814, Oliver Evans in the same year, and others make up the list.

In 1825 the first public railway was opened, in Stoekton and Darlington railway, and George Stephenson was engineer. Its first engine was the locomotive whieh was built by Stephenson in 1825. He also built the Hope, Blaek Diamond, Diligenee and Experiment in 1826. Timothy Haekworth's Royal George, a rebuilt engine, went into service in 1827, but none was entirely satisfactory, and a prize of $500 was offered in 1829 for the best engines. The Rocket, Novelty and Sanspareil entered and the Roeket won, although some elaim this was due solely to the failure of the others eaused by poor work or material. This was the famous Rainhill, England, trial, which is so often quoted, and in which twenty-nine miles per hour was made."

THE FOREMEN'S FILOSOFY.

The man in the shop helps his company and himself when he assists his fellow workman.

The man is nobly ambitious who seeks to help others up as he climbs to suecess himself.

Do not forget that any fool ean eriticize, but it requires intelligenee to aeeomplish something worthy.

People who brag about their aneestors rarely ever leave much of a record for their posterity to enjoy.

Imagine you are in the other man's place when you do not like him, then ask yourself if you would do it.

The man who can turn away bitter critieism with smile or a kind reply is a genius who has the best of the argument.

Some people brag so much about what they intend to aecomplish that they eventually get to believing it themselves.

If you are going into a game of swindle do not look for an honest partner to aid you; he does not want the opportunity.

Mean are the people who ean win notoriety only by tearing down what others build up; they are the rogues on the stage of life.

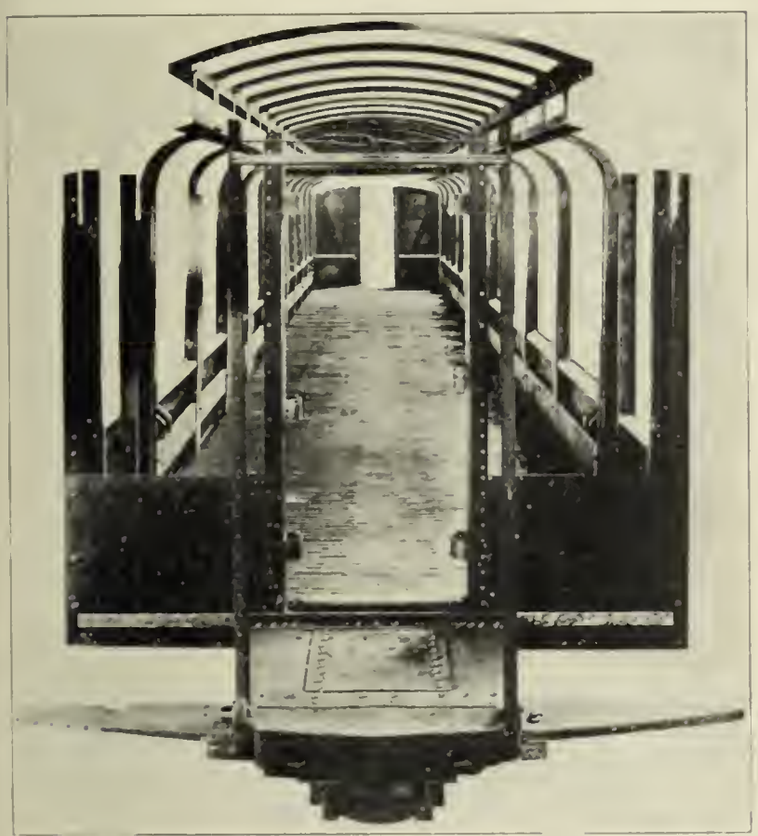
Clever is the person who can speak without leaving the wrong impression; but sometimes a wrong impression is made by not speaking.

If we would always suspend judgment till the whole truth is known we would have a higher estimation of humanity and be better thought of besides.

ALL STEEL PASSENGER CARS OF P. R. R.

The first to be completed of the order for 200 all-steel passenger cars placed by the Pennsylvania Railroad Company last year, has just been placed in service between New York and Philadelphia.

This coach is seventy feet in length and is, therefore, the heaviest car of its kind which has been built. Aside from the mahogany window sash and seat frames, there is no wood whatever in the coach. It is as nearly fire-proof and collision-proof as, in the present state of the art, it is possible to make it.



FRAMEWORK, PENNSYLVANIA STEEL PASSENGER CAR.

The car, which is called No. 1651, seats eighty-eight persons. Its total weight is 116,000 pounds—fifty-three tons—though it is hoped to reduce this figure in later designs. The standard modern coach weighs only 84,900 pounds. For every passenger carried the new coach has 1,300 pounds of open hearth steel. Each truck weighs 12,500 pounds.

The feature of construction, the factor which secures the car against the dangers of collision, is the central box girder, twenty-four inches wide by nineteen inches deep, extending throughout the length of the coach. To further insure the car against collapsing, its frame structure has been built upon the principle of the cantilever bridge, suspended on the trucks as piers. A coupler of a new type, stronger than anything used before, has been designed for this car to avoid any possibility of breakage and the resulting parting of trains. The floor of the car is of magnesium cement, laid on corrugated iron. The coach is lighted by electricity, derived from train generators or storage batteries. The heating and ventilating of the car are upon the most improved principles. Coach No. 1651 was built in the Pennsylvania Railroad Company's own shops at Altoona, and is one of the order for 200 all-steel passenger cars, of which twenty-five are to be built at Altoona, ninety by the American Car and Foundry Company, and eighty-five by the Pressed Steel Car Company. It is the declared policy of the Pennsylvania Railroad Company to have future passenger equipment of all-steel construction.

AMERICAN MACHINERY IN EUROPE.

As this has become a great exporting country for manufactured goods, the manufacturers are interested in methods that assist them in finding markets in foreign countries. Through the Consular and Trade Reports at Washington, D. C., an American representative in Germany imparts some good information that is of interest to our manufacturers. He says among other things that the failure of many American machine houses to do business in Europe can only be ascribed to a lack of knowledge of the conditions that exist here. It may be said at the outset, that American machine tools can not be sold in Europe through the medium of correspondence, and yet the attention of the writer has been called in many instances to new machine-tool houses in America endeavoring to sell goods in Germany by writing letters in English descriptive of their machines. The conditions are widely different from those which obtain in America, and it may be confidently asserted that any machine-tool house which hopes to successfully introduce its tools on the continent must, through a personal representative, study and learn the ground from observation. The only offset to this is to turn the representation over to a continental firm. There are advantages in the latter, and there are also certain to be disadvantages. If an American house can establish a reputation for its machines, business opportunities will surely be found to exist here as elsewhere.

The best American machine tools, and all new and special tools possessing merit other than mere ingenuity, will always find a market in Europe. There has been a greater demand for American machine tools in the Rhine country than in any other part of Germany. Just now the conditions are quiet in this section, but on the whole they are better than in Eastern Prussia. In the cities of Dusseldorf and Cologne there are at least three large importers of American machine tools, and it may be said that Cologne and Dusseldorf are recognized distributing points for the Rhine and for Alsace. These two Rhine cities also compete for the Italian and Swiss business, and during the last year the Italian business especially was very heavy. In Turin alone orders for American machine tools came in from 32 different sources. One hears numerous complaints, and no doubt some of them are justified, but on the whole American machine tools are today five to six months ahead of German machine tools. This lead can only be maintained by bearing down hard on technical features.

STEEL PASSENGER CAR BUILT BY PENNSYLVANIA RAILROAD.

INTERNATIONAL MASTER BOILERMAKERS' CONVENTION.

The annual convention of the International Master Boilermakers' Association will be held at Detroit, Mich., May 26, 27 and 28. Hotel Pontchartrain has been chosen as the headquarters. The convention promises to be largely attended this year. Secretary H. D. Vought has worked hard to advertise the coming convention and build up the organization. A splendid program has been prepared which will be discussed at some length. Every master boilermaker should avail himself of the opportunity to attend and have a good time as well as to secure valuable information that cannot be found elsewhere.

Mrs. John McKeown, president of the Ladies' Auxiliary, states that they have assurance of ample entertainment for the ladies, and she wishes every member to bring his wife to the convention.

The officers of the Association are as follows: President, George Wagstaff, New York Central lines, Buffalo; vice-presidents, E. S. Fitzsimmons, Erie, Hornell, N. Y.; E. J. Hennessy, New York Central, Depew, N. Y.; W. M. Wilson, Illinois Central, Chicago; E. W. Rogers, American Locomotive Co., Paterson, N. J.; Peter F. Flavin, Standard Railway Equipment Co., St. Louis, Mo.; secretary, H. D. Vought, New York; treasurer, Frank Gray, Bloomington, Ill.; executive committee, G. W. Bennett, chairman, New York Central, West Albany, N. Y.; D. G. Foley, Green Island, N. Y.; P. J. Conrath, Missouri Pacific, St. Louis; A. N. Lucas, C., M. & St. P., Milwaukee; J. J. Fletcher, Can., F. & M. Co., Toronto, Ont.

G. W. BENNETT, CHAIRMAN EXECUTIVE COMMITTEE, INTERNATIONAL MASTER BOILERMAKERS ASSOCIATION.

PROGRAM OF TOPICS.

Best Method of Applying Flues. Best Method for Caring for Flues while Engine is on the Road and at Terminals and Best Tools for Same. E. J. Hennessy, Chairman.

Boiler Explosions: Their Cause and Remedy. J. T. Goodwin, Chairman.

The Best Method of Applying Flexible Staybolts; Holding on and Riveting Same. J. H. Smythe, Chairman.

The Use of Oil in Locomotive Boiler Shops; the Most Practical Method of Its Use in Stationary and Locomotive Boilers.

Proposed Changes in the Constitution and By-Laws. Charles P. Patrick, Chairman.

Subjects: To Recommend Topics for Committee Reports at the next Annual Convention. William H. Laughridge, Chairman.

The Secretary has issued a statement as follows, relative to transportation: "An exceptional opportunity will be offered members of the Association who attend the Annual Convention in Detroit, Michigan, on May 26, 27 and 28, to travel via the Michigan Central Railroad. If a sufficient number elect to use this route from either Chicago or Buffalo they will do so to advantage as superior service and fares will undoubtedly be offered. It may be possible for all to travel together and obtain concessions that would not otherwise be available. Please advise the Secretary at once whether you will attend the Convention and whether you wish to be included in whatever arrangements are made.

USEFUL MECHANICAL INFORMATION.

To find the side of an equal square, multiply diameter by .8862.

To find the area of a circle multiply square of diameter by .7854.

To find the diameter of a circle multiply circumference by .31831.

To find the circumference of circle multiply the diameter by 3.1416.

To find the surface of a ball multiply square of the diameter by 3.1416.

To find the cubic inches in a ball multiply cube of diameter by .5236.

Doubling the diameter of a pipe increases its capacity four times.

Double riveting is from 16 to 20 per cent stronger than single.

One cubic foot of anthracite coal weighs 53 pounds.

One cubic foot of bituminous coal weighs from 47 to 50 pounds.

One ton of bituminous coal is equivalent to two cords of wood for steam purposes.

One ton of anthracite coal is equivalent to about two tons of bituminous coal for producing heat.

A gallon of water (U. S. standard) weighs 8 1-3 pounds and contains 231 cubic inches.

A cubic foot of water contains 7½ gallons, 1,728 cubic inches and weighs 62½ pounds.

There are 9 square feet of heating surface to each square foot of grate surface.

Each nominal horse-power of a boiler requires from 30 to 35 pounds of water per hour.

A horse-power is equivalent to raising 33,000 pounds one foot per minute, or 550 pounds one foot per second.

The average consumption of coal for steam boilers is 12 pounds per hour for each square foot of grate surface.

To find the pressure in pounds per square inch of a column of water multiply the height of the column in feet by .434.

Steam rising from water at its boiling point (212 degrees) has a pressure equal to atmosphere, 14.7 pounds to the square inch.

To evaporate one cubic foot of water requires the consumption of 7½ pounds of ordinary coal, or about one pound of coal to one gallon of water.

One-sixth of the tensile strength of a plate multiplied by the thickness of plate and divided by one-half of the diameter of boiler, gives safe working pressure for tubular boilers. For marine boilers add 20 per cent for drilled holes.

No plate or bar of either steel or iron should be worked at a black or blue heat, say 500 degrees; the material will stand far more strain either red hot or cold, while at the intermediate point great risks will be run and possibly strains will be produced, which result in rupture later on.

MECHANICAL RULES AND MATHEMATICS.

In the April issue the RAILWAY JOURNAL started a column devoted to railway mechanical work in which was published a portion of Lloyd's Register Boiler Rules, continuation of which is found below. More of similar rules and information will be published in future issues. The following rules are for determining the working pressure to be allowed in new boilers:

FLAT PLATES.

The strength of flat plates supported by stays to be taken from the following formula:

$$\frac{C \times T^2}{P^2} = \text{working pressure in pounds per square inch.}$$

Where T = thickness of plate in sixteenths of an inch.
P^2 = square of pitch in inches; if the pitch in the rows is not equal to that between the rows, then the mean of the squares of the two pitches is to be taken.

$C = 90$ for iron or steel plates 7/16 thick and under, fitted with screw stays with riveted heads.

$C = 100$ for iron or steel plates above 7/16 thick, fitted with screw stays with riveted heads.

$C = 110$ for iron or steel plates 7/16 thick and under, fitted with stays and nuts.

$C = 120$ for iron plates above 7/16 thick, and for steel plates above 7/16 and under 9/16 thick, fitted with screw stays and nuts.

$C = 135$ for steel plates 9/16 thick and above, fitted with screw stays and nuts.

$C = 140$ for iron plates fitted with stays with double nuts.

$C = 150$ for iron plates fitted with stays, with double nuts and washers outside the plates, of at least one-third of the pitch in diameter and one-half the thickness of the plates.

$C = 160$ for iron plates fitted with stays, with double nuts and washers riveted to the outside of the plates, of at least two-fifths of the pitch in diameter and one-half the thickness of the plates.

$C = 175$ for iron plates fitted with stays, with double nuts and washers riveted to the outside of the plates, when the washers are at least two-thirds of the pitch in diameter and of the same thickness as the plates.

For iron plates fitted with stays, with double nuts and doubling strips riveted to the outside of the plates, of the same thickness as the plates, and of a width equal to two-thirds the distance between the rows of stays, C may be taken as 175 if P is taken to be the distance between the rows, and 190 when P is taken to be the pitch between the stays in the rows.

For steel plates, other than those for combustion chambers, the values of C may be increased as follows:

$C = 140$	increased to	175.
150	"	185.
160	"	200.
175	"	220.
190	"	240.

If flat plates are strengthened with doubling plates securely riveted to them, having a thickness of not less than two-thirds of that of the plates, the strength to be taken from

$$\frac{C\times(T+t/2)^2}{P^2}$$ = working pressure in pounds per square inch; where t = thickness of doubling plates in sixteenths, and C, T and P are as above.

NOTE—In the case of front plates of boilers in the steam space these numbers should be reduced 20 per cent unless the plates are guarded from the direct action of the heat.

For steel tube plates in the nest of tubes the strength to be taken from

$$\frac{140\times T^2}{P^2}$$ = working pressure in pounds per square inch;

where T = the thickness of the plate in sixteenths of an inch.

P = the mean pitch of stay tubes from center to center.

For the wide water spaces between the nests of tubes the strength to be taken from

$$\frac{C\times T^2}{P^2}$$ = working pressure in pounds per square inch;

where P = the horizontal distance from center to center of the bounding rows of tubes, and

$C = 120$ where the stay tubes are pitched with two plain tubes between them, and are not fitted with nuts outside the plates.

$C = 130$ if they are fitted with nuts outside the plates.

$C = 140$ if each alternate tube is a stay tube not fitted with nuts.

$C = 150$ if they are fitted with nuts outside the plates.

$C = 160$ if every tube in these rows is a stay tube and not fitted with nuts.

$C = 170$ if every tube in these rows is a stay tube, and each alternate stay tube is fitted with nuts outside the plates.

The thickness of tube plates of combusion chambers in cases where the pressure on the top of the chambers is borne by these plates is not to be less than that given by the following rule:

$$T = \frac{P\times W\times D}{1750\times(D-d)}$$

Where P = working pressure in pounds per square inch.

W = width of combustion chamber between plates in inches.

D = horizontal pitch of tubes in inches.

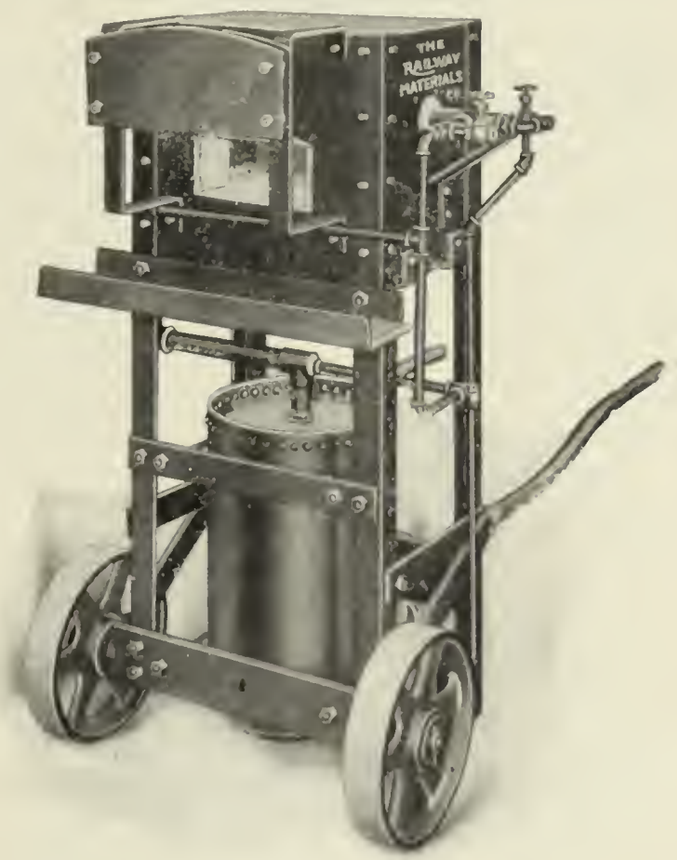
d = inside diameter of plain tubes in inches.

T = thickness of tube plates in sixteenths of an inch.

[TO BE CONTINUED]

PORTABLE OIL RIVET FURNACE.

Any mechanical device that fills an important place in a railway shop naturally is of interest to railway mechanics. The same can be said of the portable oil rivet furnace, an illustration of which is produced. This machine fills a long-felt want in the average railway shop of today. The furnace is mounted on three wheels and can be easily transferred from any point to another, for the convenience of the workmen. Two handles are provided, which are arranged in such manner that the furnace can be handled about in a similar fashion to an ordinary truck. In the trucking position the handles are raised slightly by the operator and the whole furnace then becomes balanced upon the



PORTABLE RIVET FURNACE.

axle. The furnace, bricked up and with the ten-gallon supply tank full of oil, weighs approximately 550 pounds. Its dimensions are such that in renewing the lining, standard shapes of brick can be used throughout. The width, length and height being such that any standard fire brick will fit into place without chipping. This renders it unnecessary to carry special tiles in stock—a feature which should appeal to those who have waited for special tile to arrive from the factory. The furnace plates do not need to be taken down to rebrick, as the top is purposely left open to permit of ready renewal.

It is economical in the use of air. Any pressure above ten pounds will produce good results. It is easy to handle, and acts automatically, cutting off the flow of oil when the air is cut off. The Railway Materials Company of Chicago furnishes these devices.

IMPROVEMENT IN LOCOMOTIVE BOILERS.

Mr. Wm. H. Wood, a well-known engineer of Media, Pa., who has made a careful study of the railway locomotive boiler construction and similar engineering problems, is the author of an improved method of constructing locomotive boilers. Mr. Wood's idea is to make them with an element of greater flexibility in the front head and tube plate, thus allowing the tubes to expand and contract without pulling them loose from the plates. Mr. Wood also claims that his method will release the

W. H. WOOD'S PATENT FIREBOX AND TUBE PLATE.

tension on the mud ring on the tube plate of the leg of the boiler, at the same time it increases the sectional area from the edge of the tube of the flange on the tube plate.

It is claimed that a firebox of this flanged construction is 50 per cent stronger; hence, about 350 less stays will be required in its construction. The outer shell of the fire box is made heavier to correspond more with the shell of the boiler. The heating surface will be increased about 30 per cent over the ordinary locomotive fire box.

A fire box of this construction can be used anywhere, and for the hardest kind of service, and with any water that the ordinary box can now be used, for it surely will be recognized that corrugated surfaces break up a body of water and increase the rapidity of currents, consequently the amount of deposit on such surfaces is very much less than that on flat surfaces.

It has been Mr. Wood's experience, he says, that the Fox and Morrison furnaces, for marine and other boilers, where all kinds of hard service and filthy and dirty water have been used, have proved to be highly satisfactory in preference to anything that has been constructed with plain furnaces. Therefore, he feels confident that a flanged fire box and tube plate, as represented, will do for the locomotive boiler what the other furnaces have done for the marine boiler, which is well known the world over.

Mr. Wood's method applied to the tube plate and front head will take care of the contraction and expansion of the tubes, and the ogeeing of the crown sheet and sides of fire box will be made stronger at these points, and, therefore, it is claimed it will give it more elasticity, thus preventing the cracking at the crown and tube plates.

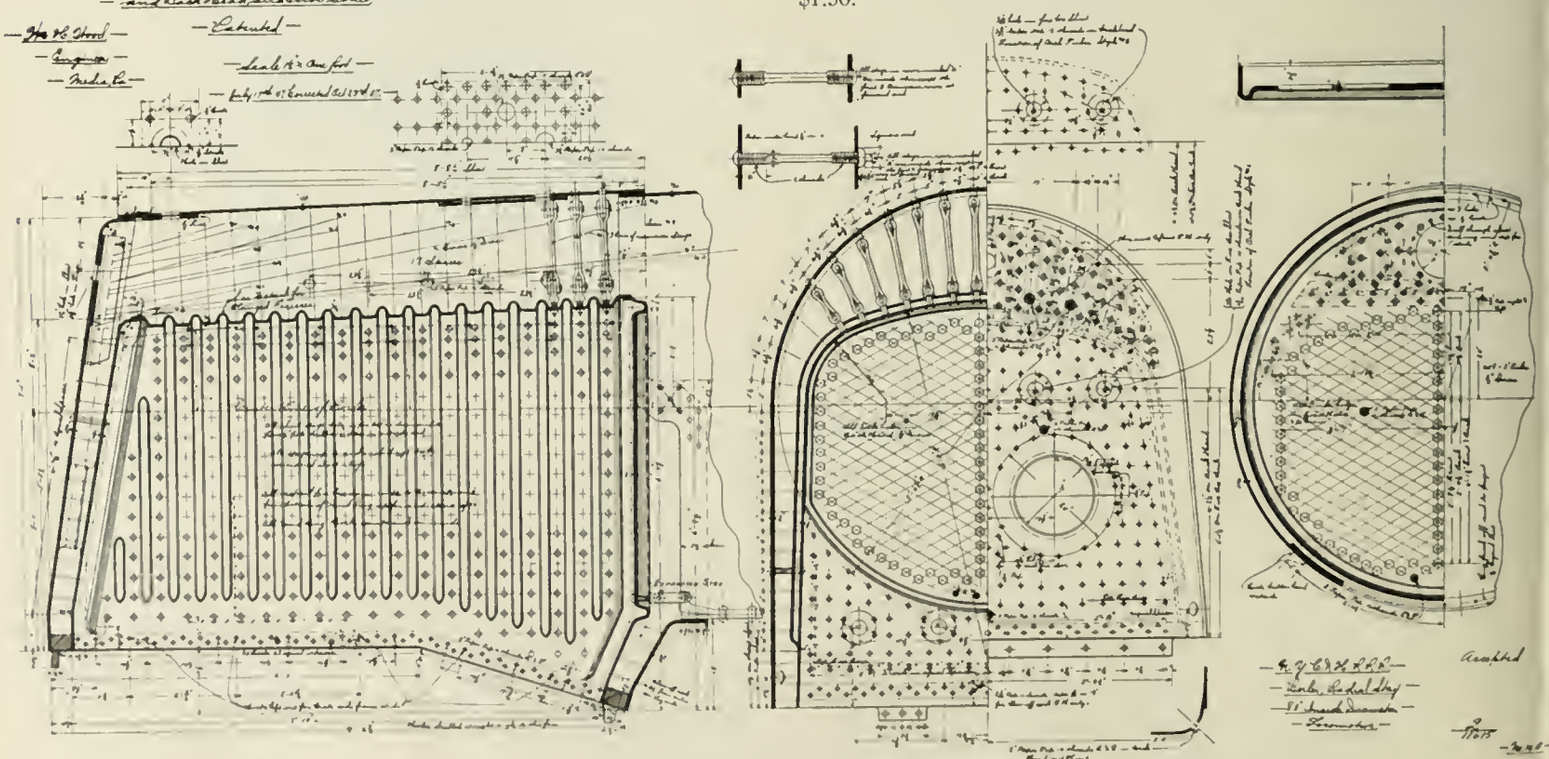
Referring to the illustration furnished us, Fig. 1 shows a prospective view of the fire box and tube plate just as it would appear before being put into the boiler. The crown of the fire box, as shown, it will be seen represents very little camber on the crown sheet, although the crown sheets of the fire boxes will be made in different forms to suit the different requirements, as will be shown in Fig. 2, which shows the fire box and tube plate as arranged for the large consolidation locomotives boilers, being built by Mr. Wood, for the New York Central & Hudson River Railroad Co.

BOILER CONSTRUCTION.

All boilermakers who wish to get the best work on locomotive boiler construction can secure through the RAILWAY JOURNAL a copy of Frank B. Kleinhans' new book on "Boiler Construction," a book of over 430 pages, handsomely illustrated and cloth-bound. The book contains 334 clear cuts and five pages of large plates, illustrating different forms of locomotive boilers. There are 75 pages devoted to laying out and about 50 pages devoted to tables, rules and other valuable data. We have arranged to secure this book for our readers at cost—$3.00—which will be sent postage paid. It is the most complete and up-to-date work of its kind we have been able to secure for our readers, and we think it is about what every aspiring boilermaker needs. A boilermaker of forty years' experience writes: "I would not take $10 for my copy if I could not replace it." We also take orders for the

WALSCHAERT LOCOMOTIVE VALVE GEAR.

This valuable book of 150 pages finely illustrated, should be in the hands of every railway engineer, fireman and mechanic as well as foreman. It is devoted exclusively to the above system of valve motion. The book contains information that is put forth so simple that anyone can easily understand it. Its illustrations and diagrams alone are worth more than the price, $1.50.



WOOD'S PATENT FIRE BOX AND TUBE PLATES APPLIED TO NEW YORK CENTRAL ENGINES.

J. WILL JOHNSON.

A good railroad man invariably makes a good business man, and often he is clever in other ways. Such is the reputation of Colonel J. Will Johnson, secretary and treasurer of the Railway Supplymen's Association of the International Railway General Foremen's Association. Colonel Johnson served his apprenticeship with the Frisco System in the train department in 1887, and the following year went to firing on the road. Two years later he was made engineer, which position he filled till 1902, when he left railway service to accept service with the Pyle National

J. WILL JOHNSON

Electric Headlight Company of Chicago, with whom he is still associated as special representative. He has been a conspicuous and valuable personage at the past meetings of the International Railway General Foremen's Association. Colonel Johnson is one of those pleasant, genial fellows not found manywhere in life, and he takes special pleasure in entertaining the ladies. He says that he would like to see about two hundred ladies at the convention this year. He states that the entertainment end of the fraternity has something good in store for all who attend the convention. They will make good their promises, too.

AMONG THE SUPPLY FIRMS.

The Atlantic Coast Line received 100 ventilated box cars early last month.

Harry C. Quest has been made manager of the railway sales department of John Lucas & Company of Chicago.

E. S. Jackman & Company of Chicago have issued an illustrated booklet on the Firth-Sterling Steel Company's special tool steel.

A. E. Mitchell, formerly with the N. Y., N. H. & H., has taken service with the Wyckoff Pipe and Creosoting Company of Stamford, Conn.

The Commonwealth Steel Company of St. Louis has equipped a new self-propelling gasoline weed-burner for the Kansas City, Mexico & Orient.

The General Railway Supply Company of Chicago, Marquette building, reports good business for the National trap door and lifting device.

The Federal Signal Company of Albany, N. Y., has removed its New York office from 42 Broadway to 103 Park avenue, the Terminal building.

The Independent Pneumatic Tool Company of Chicago has issued a catalogue descriptive of the Thor motorcycles, manufactured by one of its plants.

The Browning Engineering Company of Cleveland, Ohio, has issued illustrated catalogues descriptive of the company's standard wrecking cranes and railroad ditchers.

The Chicago Brake-Shoe Company has been incorporated to manufacture and sell the Brown brake-shoe and other devices. R. L. Brown is president, with office at 406 Fisher building, Chicago.

The Balanced Chute Dump Car Company has been incorporated in St. Louis, with capital stock of $500,000, by Arthur T. Morley, F. L. Morley, O. T. Ledford and others. Office in the Pierce building, St. Louis.

The St. Clair Air-Brake Company of Indianapolis has been formed by Augustus St. Clair, W. C. Shoemaker, Robert Stimson and others of Indianapolis. It is the intention to manufacture a new type of air-brake designed by Mr. St. Clair, who is an old steam road man.

Mr. Ira C. Hubbell is president of the Parsons Locomotive Engineering Company, 730 Old Colony building, Chicago. This company has been incorporated and will introduce the Parsons system of combustion upon steam locomotives. John H. Parsons, the inventor, is vice-president of the company.

The Falls Hollow Staybolt Company of Cuyahoga Falls, Ohio, informs us that the Paris & Orleans railway of France has specified Falls Hollow staybolt iron to be used in thirty locomotives being built. This company is sending out a booklet containing an interesting article on "Staybolts: Use and Abuse," by John Hickey. Free copy of this work will be sent to any railway official on request.

Mr. George Westinghouse, president of the Westinghouse Machine Company, has issued a circular, in which he says: "I have much pleasure in being able to notify the clients and other friends of the Westinghouse Machine Company that the receivers appointed October 23, 1907, by the Circuit Court of the United States for the Western District of Pennsylvania, were, on March 31, 1908, discharged by the same authority. All of the matters which made a temporary receivership expedient have been satisfactorily arranged, and the company's position is greatly strengthened from every standpoint." He also states that W. H. Donner has been made vice-president of the Company, in charge of all its activities.

JUNE ISSUE.

The RAILWAY JOURNAL is arranging to issue a specially interesting number for June on account of the coming annual conventions of the Master Mechanics and the Master Car Builders' Associations which are to be held next month at Atlantic City. We propose also to report the conventions to be held this month, those of the International Railway General Foremen's Association and of the International Master Boiler Makers' Association, the particulars of which are found in another column of this issue. As this issue will have unusually large circulation, it will be of special value to manufacturing and equipment firms as an advertising medium.

IRON ORE PRODUCTION.

Returns received by the United States Geological Survey for iron ore produced in the year 1907, according to the Daily Consular Reports, while not complete, indicate that the total production for the year will fall between 52,000,000 and 54,000,000 long tons. The total production of 1906 was 47,749,728 long tons. The Lake Superior district shows an increase of about 15 per cent; the southern district an increase of only 4 per cent, and the northern and northeastern districts 8 per cent. The western district figures, while incomplete, appear to show little or no gain over 1906. The amount of iron ore in stock at the close of the year was said to be the largest in the history of the iron trade.

MEN WHO PRODUCE RESULTS.

The accompanying illustration contains the likeness of the men who are largely responsible for the good work turned out by the Santa Fe shops at La Junta, Colo. They are the heads of the departments, and it can be truthfully stated that they know how to produce results. Being popular with the forces under them the plant moves along harmoniously and the mechanism of the Santa Fe is kept up to the standard. The RAILWAY JOURNAL is indebted to Mr. J. R. Hickman of the Santa Fe at La Junta for the picture and list of foremen, who are as follows:

Sitting, left to right, first, D. T. Richards, formerly machine foreman, but now with the D. & R. G.; second, F. W. Thomas, supervisor of apprentices; third, W. J. Hill, general foreman; fourth, H. T. Peyton, division master mechanic; fifth, J. P. McMurry, road foreman of engines; sixth, D. Hurley, general car foreman; seventh, James Potts, chief electrician. Left to right, middle row: First, R. T. Gorman, gang foreman; second, J. E. Hall, erecting foreman; third, James Doran, master boilermaker; fourth, Thomas Sisson, gang foreman; fifth, H. Weirick, general roundhouse foreman; sixth, John Decker, roundhouse foreman; seventh, J. E. Ramsey, night roundhouse foreman; eighth, Robert Cunningham, day roundhouse boiler foreman. Top row, left to right: First, Samuel Worman, gang foreman; second, J. E. McFarland, foreman labor gang; third, E. McDade, foreman painters; fourth, George Thompson, foreman locomotive carpenters; fifth, George Richter, foreman tinners and pipe fitters; sixth, George Miller, night roundhouse boiler foreman; seventh, S. H. Swift, acting master blacksmith; eighth, W. D. Slaten, mill foreman; ninth, Frank Deffenbaugh, assistant car foreman.

MECHANICAL NOTES.

The Dexter & Eastern has finished building repair shops at Dexter, N. Y.

The D., L. & W. is arranging to increase its foundry shop equipment at Scranton, Pa.

The Northern Pacific has received a ten-ton traveling crane for the company's shops at Brainerd, Minn.

The Chicago & Northwestern has placed an order for 600 all-steel ore cars of 100,000 pounds capacity.

The Northern Pacific has been asking bids for forty passenger cars and has ordered 500 refrigerator cars.

The Idaho & Washington Northern has placed orders for a ten-wheel locomotive and twelve refrigerator cars.

The Alabama & Mississippi has located its new shops at Vinegar Bend, Ala., for which new equipment will be ordered.

The shops of the Louisville & Nashville at New Decatur, Ala., have orders to construct 400 freight cars for the company.

The Bettendorf Axle Company has received an order for five steel tank cars of 8,000-gallon capacity, from the National Car Line.

The Chicago Bridge and Iron Works of Chicago have received an order for turntables from the Chicago, Milwaukee & St. Paul.

The Cananea, Yaqui River & Pacific has been receiving five new locomotives and some new freight equipment. This road is a new Harriman line, building in Mexico.

The shops of the Cananea, Yaqui River & Pacific are to be located at Empalme, Sonora, Mexico. The new buildings include a twenty-eight-stall roundhouse, machine shops, storeroom, office buildings, etc.

The New York Central lines have plans for the construction of 136 steam and twelve electric locomotives, the orders for which have been placed with the American Locomotive Company. Of the steam engines, forty-two are for the Boston & Albany.

Consul Rea Hanna of Iquique, Chile, requests Spanish and English catalogues from American manufacturers desiring to seek export trade in that territory, as he is organizing a commercial library for the use of local merchants for reference purposes.

The company building the Strang motor car now claims that it has achieved a means of running a car or train, at a high rate of speed, for a long distance, without the danger of steam or the third rail. This system furnishes its own power on the car.

Bids will be received until May 4, 1908, by the Isthmian Canal Commission, Washington, D. C., for the supply of lumber,

piles, pig iron, pig aluminum, electric motor, lathes, bolt cutter, upright drill, shaper machine, hack saw, emery grinder and wheels, grindstone, shafting and attachments, leather belting, belt lacing, clamp and punch, frogs, switches, switch stands, car wheels, car brasses, journal box wedges, repair parts for dump cars and steam shovels, rubber valves, reducing valves, friction clutch pulleys, vises, anvils, blacksmith's blower, chuck, saw blades, carborundum sticks, plows, slip and wheel scrapers, rackarock powder, core wash, etc.

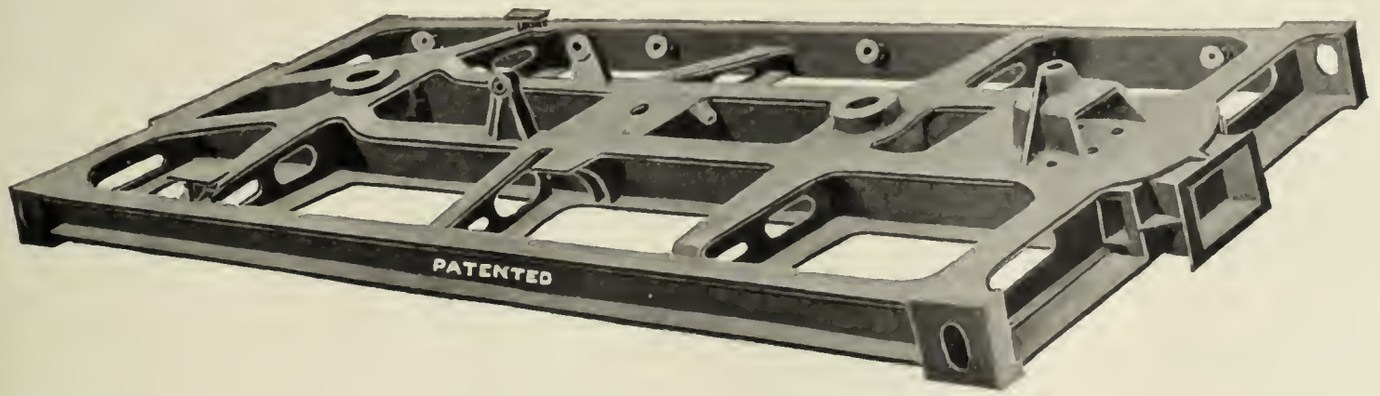
The Chicago, Lake Shore & Eastern has been asking bids on the following list of tools: One 42-inch engine lathe, motor driven; one 8-foot motor-driven planer, 30 by 30 inches, two heads; one double-head bolt machine, to cut bolts from ⅜ inch to 1½ inches, with full set of dies; one 24-inch vertical drilling machine; one 66-inch radial drill, motor driven; one cylinder-boring bar machine to bore cylinders from 16 inches to 32 inches; one double-head punch and shears with 36-inch throat, to shear 1 by 6-inch plate and to punch 1-inch holes through 1-inch plate; one set bending rolls, 7 feet between housings, to bend ½-inch plate; one flue-welding machine; one 1½-inch Ajax bolt-heading machine; one No. 6 punch and shears to shear ¾-inch to 3-inch bars, with angle shear attachment, to shear ⅜ by 3 by 3-inch angles; one 33-inch car wheel boring machine; one 200-ton hydraulic wheel press for car wheels; one single-head axle lathe; two yoke riveters; one radial drill with 12-foot arm.

IMPROVED LOCOMOTIVE TENDER FRAME.

The RAILWAY JOURNAL has been favored with illustrations and description of a cast steel one-piece locomotive tender frame, made by the Commonwealth Steel Company of St. Louis.

This frame embodies features that produce saving in repairs and maintenance, in that it combines all sills, body bolsters, needle beam and parts in one strong, durable casting, thus eliminating numerous pieces, all bolts, rivets and joints. The advantages of the cast steel frame over either the wooden or the structural steel frame is that it is stronger; in fact, practically indestructible. There are many complications removed in the absence of separate members, joints and bolts. The cost of maintenance, therefore, is very much reduced, and the interference with the service on account of repairs is practically eliminated. The possibility of damage is very greatly reduced with the one-piece casting as compared with the built-up frame of structural material, and the question of repairs, in the event of an accident, is no more difficult with the cast steel frame than it would be with any other type; while in the matter of corrosion, the loss from that cause is reduced to a minimum, both from the greater resistance of the cast material to such action and the elimination of joints, rivets and bolts, which are vulnerable points for corrosion to attack.

It is an interesting fact that, while the cast steel one-piece frame is materially stronger than the frame built up of structural shapes, yet it weighs somewhat less, and the cost is not much in excess of the built-up frame. The Commonwealth Steel Company, makers of this cast steel frame, state that blueprints and all information will be furnished on request.



BOTTOM VIEW CAST STEEL LOCOMOTIVE TENDER FRAME.

MOTOR DRIVEN PORTABLE LATHE FOR LOCOMOTIVE REPAIR SHOP.

The flexibility of electric motor drive has brought into use several types of convenient and labor saving portable machines. A notable example is the portable bolt-turning lathe designed for use in locomotive repair shops. The illustration shows a lathe made for this purpose by the Williams & Wilson Company, of Montreal, Can., equipped with a Westinghouse motor. The unit is compact in design and is mounted on wheels. It can be lifted by a crane and placed beside an erecting pit, and then shifted as desired by hand. When in working position the machine rests on the two rear wheels and the front legs. To move it, the legs are lifted from the floor, and the front wheel is brought in contact with it by simply lowering the handle, which acts as a lever.

MOTOR DRIVEN PORTABLE LATHE.

The motor which operates the machine in the illustration is of the well-known Westinghouse induction type, 2 h. p., 1700 r. p. m. It is connected through a friction clutch providing for either 200 or 400 r. p. m. of the spindle. Direct current motor applications are equally successful. The current supply is afforded by flexible cable connection to plugs located at convenient intervals. A simple and convenient connecting plug is made for the purpose. The advantage of using a machine of this type in work requiring the turning of each individual bolt to the proper size is readily apparent. It both obviates the necessity of innumerable trips to and from the machine shop and the consequent loss of time, and permits the mechanic to carry on his work without interruption.

When not in use the machine can be moved to a point in the shop where it will be out of the way of the workmen. When not in use for the purpose designed, it becomes a valuable and convenient auxiliary to the machine shop equipment.

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CARS

LOCOMOTIVE REPAIRS

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GENERAL OFFICES FISHER BUILDING CHICAGO

The Modern Method of Staying Fire-Boxes

OVER ONE HUNDRED RAILROADS ARE USING

The Tate Flexible Staybolt

AS TO ITS VALUE, We have left this question entirely in the hands of railway mechanics. Its service record proves conclusively the advantages to be gained by a most thorough installation. The increased use of this bolt among early customers testifies as to its utility.

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WE MAINTAIN that the fire-box sheet when rigidly stayed—with the ordinary staybolt—buckles and brakes in its effort to expand, throwing great stress on the bolt which becomes fatigued, ruptures and breaks. The fire sheet owing to the unnatural strain due to bending—the result of rigid staying—collects innumerable small cracks on the surface, invariably exposing the inner structure of the material to constant disintegration.

THE TATE FLEXIBLE STAYBOLT when properly applied—covering sufficient area to allow the fire-box to expand in a more natural course—affording less resistance to the force of expansion on the sheet, thereby overcoming largely the transverse stress which breaks the rigid bolt, not only eliminates the risk of cracking sheets, but reduces staybolt breakage to an absolute minimum.

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ARE USED BY TEAMSTERS TO SAVE THEIR HORSES

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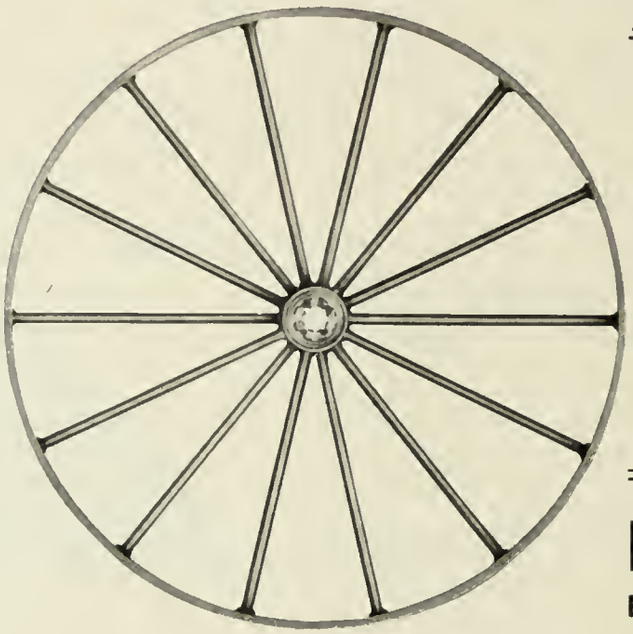

Our Steel Wheels, with Steel Hub, Steel Bushing and Roller Bearing are superior to any other wheels you have ever used. This means expediting service and reduces the draft 40 per cent. Write us, or have the man who builds your trucks, write us.

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ARE EXPENSIVE.

CHICAGO GRAIN DOORS

SAVE THEIR COST EVERY FOUR TRIPS

Chicago Grain Door with release door.

SECURITY LOCK BRACKETS for Outside Doors are Thief Proof.

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CRANES ELECTRIC HAND POWER

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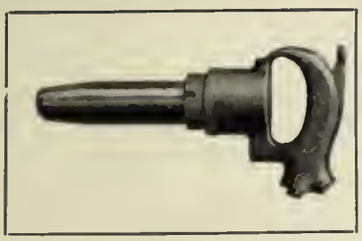

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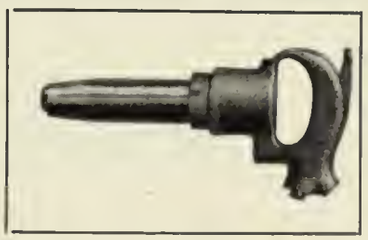

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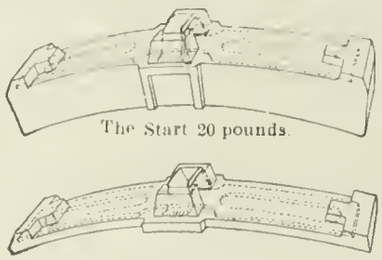

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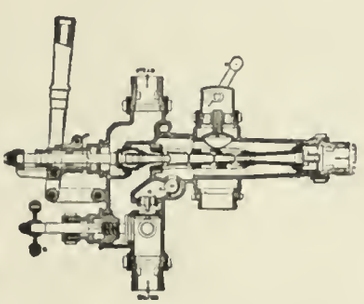

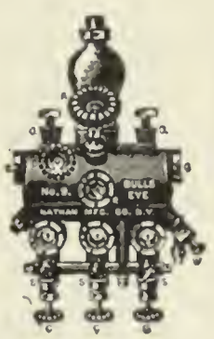

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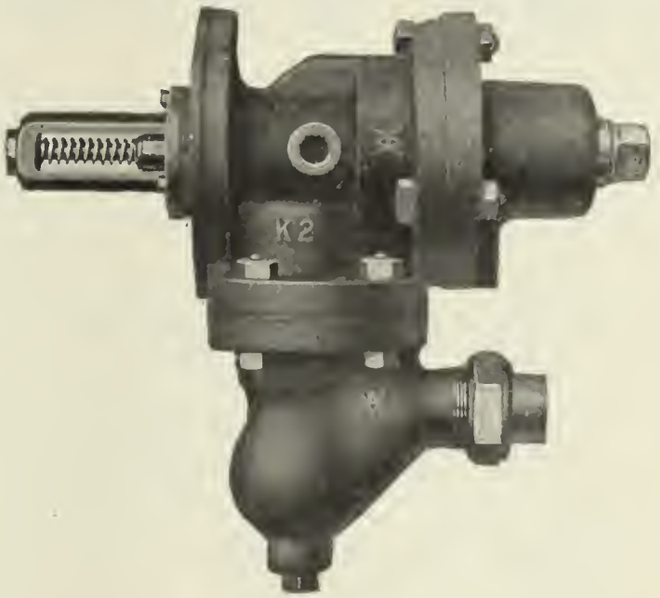

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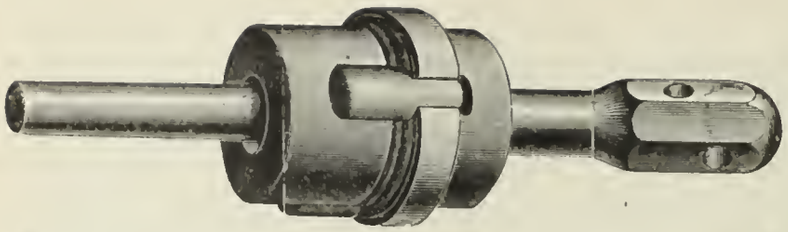

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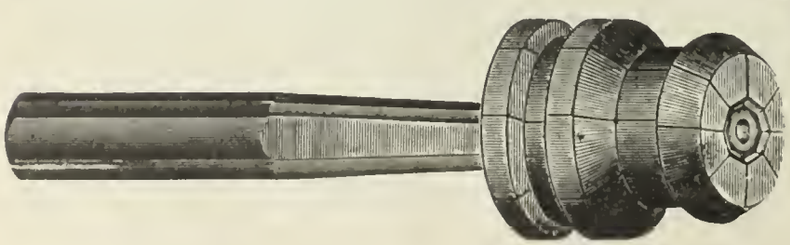

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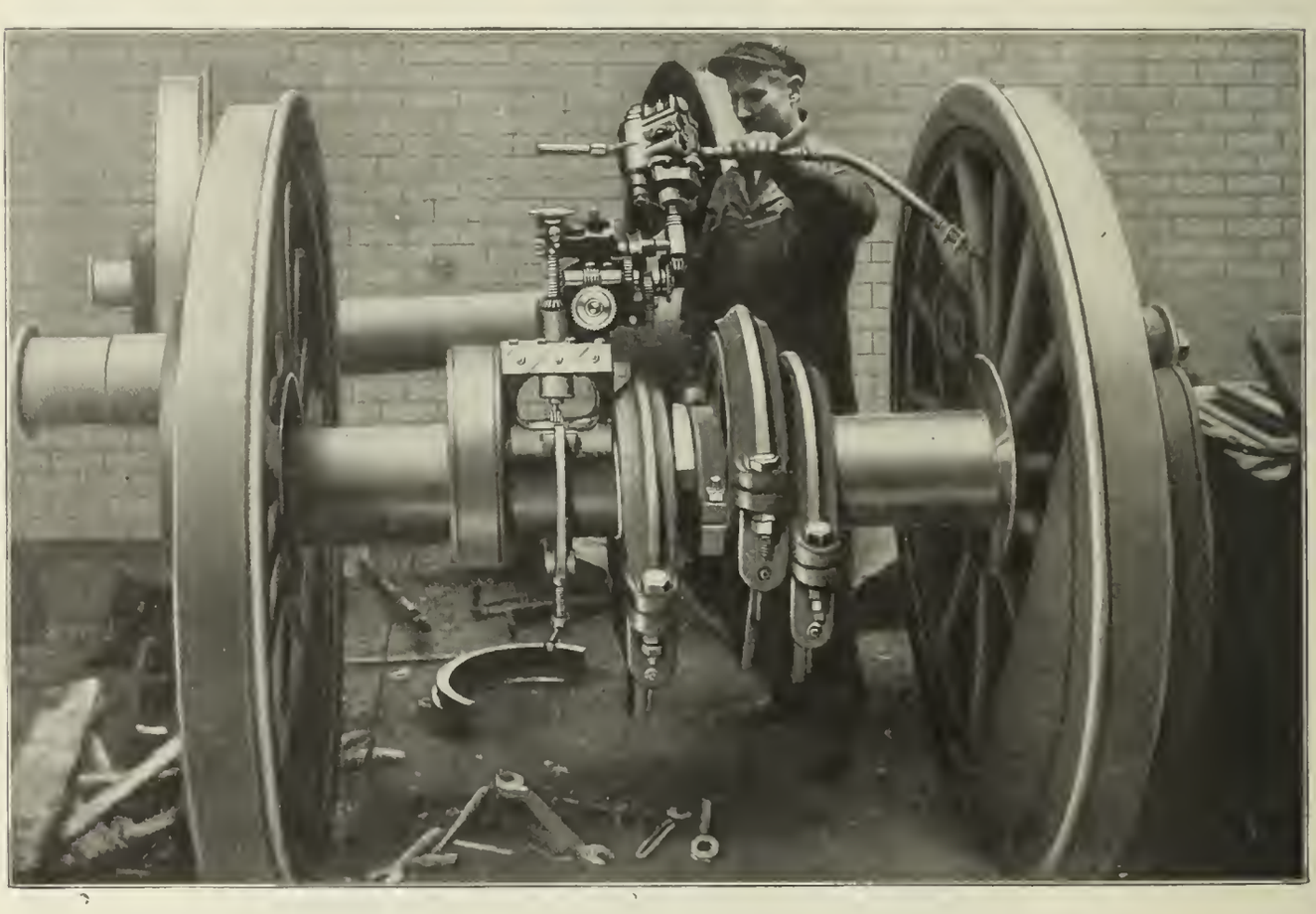

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CONTROLLING RAILROAD CAPITALIZATION.

On April 28, Hon. E. H. Madison, representative in Congress from Kansas, made an address in which he touched upon the railroad financial problem. Viewing it from the standpoint of a layman, Judge Madison's address would indicate that the "short-grass statesmen" of the West are capable of doing some thinking, and that the radicalism of the days of Jerry Simpson has passed away.

As an introduction of his talk on proposed railroad legislation, Judge Madison said: "The day of the railroad rebate is ended, and if this administration had no other mark to its credit but that, for all the years of its existence, that one alone would entitle it to the esteem and gratitude of the American people. The abolishing of railroad rebates, however, was but an incident in the great epoch-making policy of this administration—the governmental regulation and control of the great corporations engaged in interstate commerce." He then refers to the change of conditions which has brought about combinations eliminating the short lines, and the fact that "a few men control the great transportation lines of the country. It will not do to entrust a few men with unrestricted control over the transportation agencies of a great nation, or the manufacture or production of any of the necessities of life." He intimates that Congress has not finished its task in regard to railway legislation, as "there will be other battles to fight for those who believe in government control and regulation of corporations." In regard to capitalizing railroads, he says in part:

Too long have the people suffered from the evils of overcapitalization of carrying and industrial corporations. Every one of those corporations is organized for the purpose of trade with the public, and every dollar of watered stock issued is an unjust burden upon the public, which it has a right to protest against.

It is a familiar story how railroads have been built in this country with money secured from the investing public by the sale of the mortgage bonds of the company, and in addition there have been issued to the incorporators and promoters the stock of the company equal to or greater than the amount of the bonds for which the holders paid little, if anything, but their patrons have been called on, through unreasonable rates, to pay the interest on the bonds, provide a sinking fund for their payment, and pay dividends on the stock.

It is a familiar story how both the carrying and industrial combinations are formed and the property of the former firms and corporations exchanged for vast sums in excess of their actual value, measured in the stock of the new concern, and the people, who must eat and must be clothed and housed, are, in fact, taxed upon the necessities of life to fill the gap between the actual and fictitious values of the property and make the stock dividend paying and worth a hundred cents on the dollar. Why should Congress hesitate to enact legislation to prevent such practice in the future by all corporations engaged or to engage in interstate commerce? With some of the greatest lawyers in the country among its membership, it can, if it will, devise and pass effective legislation along these lines within a reasonable time, and it cannot escape responsibility if it does not.

CONGRESS MUST NOT ACT HASTY

The Government having of necessity under existing conditions entered upon the task of regulation and control of common carriers engaged in interstate commerce cannot now stop in the middle of the stream. It must go on wherever there is actual need for further extension of regulation within the constitutional power of Congress to provide it; not in a spirit of destructiveness and not by hasty or ill-considered action, but certainly and surely, safely and conservatively, in the interest of the people who look to the Government for the exercise of its proper powers for their protection.

As the railroads are highways of the nation, every person is entitled to use them upon equal terms with every other person and also upon reasonable terms, and the latter cannot be secured in fact until the Interstate Commerce Commission has the power to initiate proceedings for the reduction of rates.

The benefits of the present law cannot be obtained without great expense. Shippers and communities are today suffering from the imposition of unreasonable and discriminatory rates because of the expense and hardship of commencing and prosecuting a proceeding before the Commission. The State of Kansas, realizing the need of assisting its local communities to obtain just rates, has appropriated money from its treasury to assist its people in maintaining proceedings of that character before the Interstate Commerce Commission.

SHOULD EXAMINE INTERSTATE RATE COMPLAINTS.

There should be an attorney for the Interstate Commerce Commission, with a competent corps of assistants, whose duty it should be to examine into all the complaints of unreasonable rates for interstate shipments made informally by shippers and communities, and in cases where the rates appear unreasonable he should initiate proceedings for their reduction before the Commission and maintain them at the expense of the public.

The State of Kansas has adopted this plan as to its local commission with marked success and without great expense to the State. The matter should not be and cannot be fairly thrown upon the shoulders of individual persons, communities, or States. It is essentially a matter of public duty to secure for all the public at all points just and reasonable interstate rates. It will not do to give the people the shadow while withholding from them the substance. It is folly to enter upon rate making unless the power to secure evidence, and the best evidence obtainable, is made possible. Making the physical valuation of all the railroads of the country at one time, and stopping there, would be of but little evidentiary value, for the value of today of any given road may be wide of its value a year from now. But we should not hesitate to give the Commission power to make a physical valuation of a road whenever, in its judgment, it is deemed necessary in the exercise of its rate-making function.

CONTROL OF CORPORATIONS.

At the conference of the state governors held at the White House last month for the apparent purpose of uniting upon some state and federal policy of protecting and saving the natural resources of this country, many interesting addresses were made by distinguished statesmen and noted business men of the nation. President Roosevelt presided at the gathering and made several addresses. In his opening address he made a strong appeal for interests of the country relative to protecting the fast disappearing timber, coal and mineral resources. He urged that action be taken towards the development of navigation on the streams, and called attention to the fact that there is less river navigation in this country today than there was fifty years ago, which statement is a surprise to many. However, when one realizes that nearly every settled community in the United States has access to railway transportation, it is easy to understand why river navigation should decline.

Mr. J. J. Hill of the Great Northern made an address before the meeting on May 14, in which he called attention to the importance of our agricultural resources. He stated that not over 5 per cent of our food products come from the sea, the balance coming from the soil. The soil should be protected by proper cultivation, said Mr. Hill.

NO TWILIGHT LAND.

Mr. W. J. Bryan, at the conference on May 15th, touched upon federal and state control of corporations in which he declared that "there is no twilight zone between the nation and the state in which exploiting interests can take refuge from both." He further stated that the lines of demarkation separating nation and state "are traceable to predatory corporations which are trying to shield themselves from deserved punishment or endeavoring to prevent needed restraining legislation." The above remarks seemed to bring President Roosevelt to the floor, for he hastened to express himself as if newly inspired or as though defending a former attitude of himself. His remarks along this line were as follows:

Just a word of what has been called the "twilight land" between the powers of the federal and state governments. My primary aim in the legislation that I have advocated for the regulation of the great corporations has been to provide some effective popular sovereign for each corporation. I do not wish to keep this twilight land one of large and vague boundaries by judicial decision that in a given case the state cannot act, and then a few years later by other decisions that in practically similar cases the nation cannot act either. I am trying to find out where one or the other can act, so there shall always be some sovereign power that on behalf of the people can hold every big corporation, every big individual, to an accountability so that its or his acts shall be beneficial to the people as a whole. In matters that relate only to the people within the state, of course the state is to be sovereign and it should have the power to act. If the matter is such that the state itself cannot act then I wish on behalf of all the states that the national government shall act.

OPPOSES MONOPOLY.

Before the final session adjourned on May 15, a set of declarations was adopted in which the following paragraph is a part:

We agree that the land should be so used that erosion and soil wash should cease; that there should be reclamation of arid and semi-arid regions by means of irrigation, and of swamp and overflowed regions by means of drainage; that the waters should be so conserved and used as to promote navigation, to enable the arid regions to be reclaimed by irrigation, and to develop power in the interests of the people; that the forests, which regulate our rivers, support our industries and promote the fertility and productiveness of the soil, should be preserved and perpetuated; that the minerals found so abundantly beneath the surface should be so used as to prolong their utility; that the beauty, healthfulness and habitability of our country should be preserved and increased; that the sources of national wealth exist for the benefit of all the people, and that the monopoly thereof should not be tolerated.

CHICAGO TRAFFIC CLUB DINNER TO F. T. BENTLEY.

The evening of April 14th brought together at the banquet table at the Auditorium a representative body of men in such numbers as to be evidence of the popularity of F. T. Bentley, in whose honor the dinner was given. The entertainment was complimentary to the effective administration of the past year with Bentley as the president. His successor, George H. Ingalls, presided in a graceful manner at the speaker's table.

In replying to the commendatory remarks, the ex-president took for his subject "Man Wanted," and from this as a premise he deduced many salient pieces of advice and practical reflections, and also indicated his appreciation of the assistance given him by the officers and members of the club. Especial comment was because of the energetic co-operation of J. T. Stockton, the present secretary, who was also in the same office for the prior year.

Loving cups were presented by the club members to both Mr. Bentley and Mr. Stockton in complimentary appreciation of their services. J. J. Wait made the presentation of the Bentley cup, and the cup for Mr. Stockton was presented by the retiring president. The prominent speakers were Honorable P. S. Grosscup, U. S. Circuit Judge, B. L. Winchell, president C., R. I. & P. Ry., and William Duff Haynie, general counsel of the Illinois Steel Co.

Judge Grosscup was most impressive in his touching upon what some people have considered "The Impassable Gulf," meaning the breach between the people and

the corporate interests. In reference to this chasm separating the two interests, he spoke as follows:

How shall this gulf then be bridged? It can only be bridged in one way. I have said that one-third of the wealth of this country is already in property that has taken the incorporated form, and that nearly one-half of the people of the country by the conditions of the times are attached by vocation and depend for bread upon those properties. What we have to do is to give to the people of America an individual, personal interest in this great new domain that has been incorporated within the past twenty years, and that can only be done by the constructive method of making the corporations of the future a trustworthy medium of proprietorship, a trustworthy form of holding property, something that you and I with our savings, that the farmer with what his frugality has laid aside, that the laboring man with what his economy has given him at the end of a year when his expenses are paid, can use to lay up for himself a personal, individual proprietary interest in the industries of his country. And when you have built up a corporate policy in this country that will make it a trustworthy medium of proprietorship, when the corporation is no longer as it has in so many instances been in the past, a mere shuttlecock and battledore of promoter and promoters; when you have invited the confidence of the country and have justified that invitation, you will find that the personal interest, the personal economy, the personal element of the country will go in and inhabit as proprietors this corporate field just as under the homestead and pre-emption acts of the country they went west and inhabited the great agricultural domain of the country.

That is not mere regulation; that is not restraint on business. That is giving to this industrial domain what we have given to government, a chance for every man to exercise his instinct and to show his manhood. What we have given to the agricultural regions of this country, a chance for every man to build up for himself an individual independence. Of course at this time I cannot enter into the details of what should be this great corporate construction, but that is the method, that is the bridge, and, my friends, it is coming.

The gulf is not impassable between individual personal interest and these mighty sweeps of industrial activities into which the energy of this country has been poured. I stood only a little while ago at Niagara. Before me rushed that mighty stream over the precipices, and away off to the lake beyond. Had I gone up the stream I could not have found a place to pass; had I gone down the stream I could not have found a place to pass, and before me was the cataract itself. On the other side was an alien country; the gulf seemed impassable, but almost at once from my side and from the other side there shot up the rays of a rainbow that met in the middle, a bow that bridged this side with that side, although the cataract rolled underneath. We see now the rainbow. The rainbow of promise, not the traditional rainbow that has no reality, but the rainbow that after a while will turn into a bridge, and all we have to do is to give our earnest support to the public heart and the public action that blindly sometimes, but seriously and sincerely, is reaching for the right solution.

CORPORATIONS MUST KEEP OUT OF POLITICS.

Do not let us attempt, gentlemen, you who are associated with corporations,—let me tell you, if I were a Democrat I would tell you, as a Republican I tell you—do not attempt to take possession of either of the great political parties that intend to meet in their conventions next month and the month following, with any idea of turning back the public movement. If you go there at all, go there for the purpose of giving the public movement its right direction. Do not go there with the intent of conquering or capturing any convention. If there is any wedding in June between the Republican party and the great trusts, there will be a divorce in November. (Prolonged applause.) Do not attempt to do anything of that kind, but calmly and earnestly as citizens let us unite in taking the corporation as we have it today, ridding it of those evils, of those wrongs that have made it what it is in so many instances, and build up upon it a future that will invite all American citizenship into its domain on equal terms, practical as well as theoretical, that the industry of the country as well as the government of the country may from this time forward begin to be a thing of the people, by the people and for the people. That is not demagogism, that is solid wisdom.

SUGGESTIONS FROM PRESIDENT WINCHELL.

President Winchell, who seems to us as much as any man we know to contend for his rights broadly and without prejudice, made an appeal for conservative treatment of the rate question along lines that impose the very least burden and involve a more than compensating good to all. It was an argument to sustain the position that it is better for all the country to shoulder the evils of poor business conditions, in order that the majority may suffer the least, than to let many most grievously experience want while a few have their usual surplus. His remarks are in part as follows:

A good deal has been said of late, and very properly, about the formation of Sunshine Clubs and Please Come Back to Prosperity Clubs, and they are all organized in the right spirit and we all ought to help them in every possible way. I am very glad that there is a lessened disposition to go into the causes of our present more or less deplorable condition. The depression is severe, we might as well admit it, and we want now to look for the way out of this slough of despond, because while conditions are not as serious as they might be, we cannot close our eyes to the fact that men are out of work and children are hungry, and if there is a more deplorable condition than that in the world I do not know what it is.

Our civilization is complex, and perhaps it is not fitting that a railway official should be the one to attempt to explain it, but it is true, nevertheless, that the history now of the transportation companies is to a very large extent the history of the country. The prosperity or the failure, the woe or the weal of the transportation companies is written in the books of the commercial houses of this country, and I think perhaps that is true to a greater extent than the commercial people have ever realized. I know some words have been said and some petitions have been signed by those who are at heart our friends which would not have been said had a full knowledge of the situation been plain to the speaker. That means, reduced to words, that we cannot hope for the big prosperity which we want, for the general resumption of traffic until the railway companies are again spending money.

When the railway companies are spending money it means to set the saw mills in motion, manufacturing lumber for building cars and for rebuilding bridges and stations; it means to set the ore mines in a state of activity. We want steel for rails when we can get them and afford to pay for them; we want heavier bridges; we want locomotives; we want everything pretty nearly that steel enters into the construction of. On the present reduced basis of the tonnage in the country it is apparent to a great many of us that the railroads cannot prosper and cannot continue—or begin is a better word; we cannot begin again to spend money unless one of two things happens; we must either have a little more money for our service or we must pay lesser wages. It would be a sad blow to the prosperity clubs which are forming, and with which I am in full sympathy, if we began to reduce wages. That is not the way to make times good. We had better set men to work at present wages rather than reduce the wages of those men who are now at work.

Further than that, to reduce wages will in no way set the wheels of commerce in motion again, and I know that you all realize that that is the way to get going. Unless we turn the wheels, we can talk about it and resolve about it until we are black in the face, but good times do not come. The decreased purchasing power of every community in the United States today you all realize is at the bottom of the trouble. How can we increase it? Approximately one-third of all the manufacturing enterprises of the United States are engaged to a greater or less degree in manufacturing materials which railroad companies use. We are large users of most of these things, small users of a large majority of the stuff which is made in this country. If we can once begin to buy these things, can the manufacturer afford to have a very small increase in the rate on each ton of stuff which he ships, if he doubles his tonnage, or can he better afford to go along under our present conditions?

Isn't that one way to look at it? Are we blinding ourselves to the situation if we argue that under the present depressed condition the business of the country cannot stand increased freight rates? I would like to have you think this over after you go home and see if any reasonable increase in freight rates, which will put the railroad companies into the market as active buyers, will not perhaps better accomplish the purpose than a further reduction of freight rates. It is an endless chain that goes right around; a railroad company is an agent and a distributor of money. We do not make money in the sense that a manufacturing concern does. A railroad company has very little of its gross earnings ever stick to its fingers. A large part of what we

collect goes for wages, for coal and other materials. Some goes to pay the fixed charges of the line, the bonded interest, and once in a while there are a few pennies left for the stockholders. On some lines even that is not so, but the principal thought I am illustrating is that the more money the railroad companies get the more money they put in circulation. The more they collect, the more they distribute.

One of my good friends said to me a day or two ago that the business men of the country would not say as much as they have said on this matter of increased freight rates if they had been consulted in advance, and one of the large and powerful organizations of the country has recently addressed a letter to the presidents of the railroads of the United States, from which I read a clause:

RIGHT TO ADVANCE RATES.

"We are unwilling to deny the right to advance is co-related to the right to reduce a rate. We do believe, however, that in the exercise of that right, when it contemplates an advance in all class as well as commodity rates throughout the country, the right of the shipper and general public is to be considered, and they should have an opportunity to be heard upon such questions before a general advance is made effective."

It is a comparatively easy matter to consult half a dozen of the largest shipping interests in the country. I confess I do not know of any practicable way in which to consult all of the shippers of the United States, unless we submit the matter at an annual election, the presidential election or something of that sort, and have everybody vote on it. It is true a plan is suggested for a hearing by the Interstate Commerce Commission, but I want you to think about this: suppose it is brought before the Interstate Commerce Commission and the suggestion to slightly advance rates is denied. Does that help us any? Does that set the wheels in motion as we hope they will be? After all, that is what we want. Maybe I am on the wrong track and maybe what I suggest is not the panacea, but at any rate, let us all think about it.

The speech of the General Counsel of the Illinois Steel Company, William Duff Haynie, was more largely a personal compliment to Bentley, though his suggestions about the evil of drawing wrong inferences concerning people and circumstances and the unhappy effects resultant therefrom are something to remember. If borne in mind, they will have much influence in controlling our acts as they relate to individuals and corporate institutions also.

INCREASE IN FREIGHT RATES.

When the state legislatures were passing laws to reduce passenger fares, the participating solons did not realize that the roads would be obliged to increase freight rates in order to keep their earnings up to meet necessary expenses and pay interest on money invested. Since there has been some reports that increase of freight rates are contemplated, the press has endeavored to find reasons why advances should not be made. Under date of May 8, the Washington Times had an editorial on this subject in which it said in part:

There may be good reason for an increase in rates at this time, but there are mighty few people who will believe it. Other people are content to operate their business on a somewhat less profitable basis in slack times than in flush; why should especial exception be made in favor of maintaining railroad earnings, through thick and thin? A general increase of rates now means simply robbing Peter to pay Paul; the added revenue to the railroads must come from the patrons of the railroads, who are in no better condition to pay it than the railroad treasuries are to do without it. It will be bad policy and worse politics to permit any such general and agreed advance of rates at this time. The truth is that the public has already been a good deal disappointed in the results from control of railways under the Hepburn law. There has been a tendency to increase of rates, which in the aggregate has imposed many millions of additional burdens on the freight-paying public. Passes have been cut off; rebates have been stopped; new sources of revenue have been opened, old extravagances have ceased.

The Times does not point out the fact that the Hepburn law has imposed a new burden on the roads in the way of new uniform accounting, and cautiously refrains from mentioning that passenger rates have been almost universally reduced. If the public is disappointed in the results of the control of roads by the Hepburn law, as stated by the Times, it is no fault of the roads. If the law is so defective that it is not beneficial, then it should be repealed. The roads and the public both can do without it. On this same subject The Post of Houston, Tex., says:

The question therefore is: Whether the loss due to the depression shall be shared by the owners of the railroad properties, or whether it shall all be borne by the people who have suffered from the same causes which have curtailed the revenues of the railroads. The railroad companies have been able, by cutting down expenses, to do much toward neutralizing their losses. They have laid off tens of thousands of employes and reduced the cost of operation by many, many millions. In this way they have lightened their own burdens while increasing the burdens of the public in the way of forcing thousands of men into idleness. We are not prepared to discuss the full merits of a proposition to generally advance rates. Obviously the companies must have revenues sufficient to operate their properties and the public will surely have to pay that much and even more.

It is true that some roads have laid off a portion of their help, but that action was forced by lack of business and is only temporary. As soon as there is a heavier movement of traffic, which this season's crops will produce, the roads will be forced to increase their army of employes. There are very few, if any, railway employes out of work now who do not anticipate returning to the service as soon as the earnings of the roads justify. An increase of earnings will also mean betterment in roadbeds and in train service. From a business standpoint the roads are justified in the increase of rates.

PLANS OF MR. HARRIMAN.

The financial conditions at present do not seem to affect Mr. Harriman much in his plans of construction and consolidation. On May 5th the stockholders of the Union Pacific held a meeting at Salt Lake City at which they authorized the issue of another $100,000,000 of bonds, also the purchase of the Leavenworth, Kansas & Western and the Topeka & Northwestern. It is true that this issue of bonds has not all been sold yet, but it shows the strength Mr. Harriman has with his people and how ready they are to support him in his great constructive plans. As to the purpose of this large bond issue, it can be best understood by the statement issued by Mr. Harriman prior to the meeting in which he sets it forth as follows:

The financial requirements of the Union Pacific have been much exaggerated. The maximum amount needed at this time to put the company in funds does not exceed $25,000,000, but we want to resume development and put our people to work. In no event, however, will over $50,000,000 of the bonds be issued against the properties now owned. While the stockholders will be asked at their meeting tomorrow to authorize an issue of $100,000,000 of bonds, at least $50,000,000 of the amount will be reserved for issue under strictly guarded provisions only for the construction or acquisition of new lines and for additions. Instead of mortgaging new lines as constructed or acquired, and thus having separate mortgages on different divisions, it is deemed best to provide in one mortgage for future extensions and new lines. The meeting is a preliminary step to put the company in a position to take advantage of the favorable opportunities to raise additional capital to the best advantage.

MR. GOULD AND HIS TASKS.

According to reports from Wall street George J. Gould has a series of gigantic tasks before him in a financial way. The work is not all to be done by him alone, as he has many strong friends in the financial world, many of whom are allied with him in his railway undertakings. But to raise about $50,000,000 in a few months is not easy at present even with the strongest combinations. That is about what the Gould interests are forced to do. The following is the list of herculean tasks now confronting Mr. Gould and his friends:

1. Set the Western Maryland on its feet.
2. To reorganize the Wabash-Pittsburg Terminal Company under its first mortgage without losing control of the Wheeling & Lake Erie. To lose the Wheeling & Lake Erie would disrupt the whole Eastern Gould position.
3. To finance $8,000,000 Wheeling & Lake Erie notes coming due in August.
4. To fund the floating debts of the Wabash.
5. To fund the floating debts of the Missouri Pacific System.
6. To raise the $10,000,000 or $15,000,000 necessary to complete the Western Pacific and provide it with enough equipment to compete with the Central Pacific.

Those familiar with Mr. Gould's strength do not doubt but what he will gratify his ambition in all these, and secure for himself an ocean to ocean system which he has undertaken and would easily have accomplished had not the present panic come on so suddenly.

RAILWAY PAPERS CONSOLIDATE.

The Railway Age of May 15 says editorially in part: "On June 1 The Railway Age and the Railroad Gazette will be consolidated. The resources of both will be concentrated on one object, with the single purpose of making the greatest and best railway journal possible. The "Railroad Age Gazette," which will be the title of the consolidated paper, will have on its editorial staff a larger number of men of great ability and experience in railway affairs than will be found on any similar publication."

The Railway Journal joins the railway press in wishing the Railway Age Gazette success in its combined venture. Both publications have ranked among the best in the field of trade journalism and deserved the hearty support they have ever received. The new headquarters are to be in New York City.

MR. RYAN AND WATERED STOCK.

Mr. Thomas F. Ryan of Seaboard Air Line fame, and a well-known character of Wall street, has endeavored to inform the public that "ninety-five per cent of the railroad stock of this country never cost a dollar." It was before a special grand jury in New York City that he imparted the above information, or rather made the startling statement quoted above. No doubt this misleading statement will be repeated thousands of times by the stump-speakers in the coming campaign regardless of its untruthfulness. He did not explain that in the early days of railway construction, promoters gave stock as a bonus to bond buyers whose money built the roads. For instance, an investor for cash of $100 got $100 worth of stock, $100 worth of common stock and $100 land grant bonds as bonuses with a $100 railroad bond. It may be true that some few lines are overcapitalized, but on the other hand there are many others that are undercapitalized. The Great Northern has no bonds and the D. L. & W. has none of consequence. Stock that was once considered worthless has recently acquired value by applying earnings to improvements. The most of the stock watering records of American railroads were made years ago when railroad investments were considered hazardous and were at least an unknown quantity as to financial values. The pioneers in railway investments had to take chances just as the pioneer merchant or farmer has odds to contend with before he realizes on his venture.

Taxes seem to grow in Oklahoma about as prolificly as crops, according to the recent report of the State Board of Equalization of that state. Particularly is this so with railway taxes. That body has figured the Oklahoma railroad property to be worth $172,498,910, which is $132,354,005 more than the roads rendered in their reports to the state auditor. Last year the territorial board of Oklahoma made an aggregate assessment of $13,812,528 on the roads in Oklahoma territory, which was about half the property now assessed in the entire state. Assuming that property has doubled in value within the past year, or since statehood was established, the present board has increased the total railroad valuation approximately $144,000,000 above what it would have been upon the basis adopted by the territorial assessing board. The State Board of Equalization has figured out that the railroad, coal and oil properties will pay about one-third the total taxes of that state.

The Railway Journal is in receipt of a bright, attractive four-page circular issued by Mr. Alexander Jackson, of 29 Cockspur street, London, general European agent of the Rock Island-Frisco Lines, which contains some attractive statistics of this country used to induce a desirable class of homeseekers to the states traversed by his lines. The circular contains a large likeness of "The great American Heir—the farmer's wife's sidepartner and savings bank." The facts and figures set forth are convincing that this is the land of the producer, and is an illustration of what special efforts the roads are making to develop this country.

The Denver & Rio Grande management proposes to ask the stockholders to vote in July on a new issue of about $150,000,000, the proceeds to be used to retire outstanding obligations to the extent of $90,000,000. The balance is for new construction work which includes double tracks on the main line. The plans also include consolidating the Denver & Rio Grande and the Rio Grande Western. These lines belong to the Gould system, and are to be the connecting link between the Missouri Pacific and the new road building from Ogden to California, the Western Pacific.

The annual report of the Kansas City Southern shows that the road is earning money and that for the nine months prior to April 1, the earnings show an increase of over $500,000 above those of the same period last year. The company has been expending money liberally to put the roadbed in first-class condition and improving its facilities in every way. The net earnings for the nine months ending March 31, 1908, were $2,186,074.16. It is anticipated that at the end of the year, June 30, there will be a handsome dividend declared.

FROM MY OBSERVATION CAR.

By R. R. Jester.

There are not many business men in Kansas City who are not familiar and friendly with Mr. J. P. Cummings, who served the Chicago, Burlington & Quincy for several years as local freight agent at that point. His services since he was fourteen years of age have been with the Burlington and its allied lines, in St. Joseph, Mo., or Kansas City. For eight years he was freight agent at the latter point, which position he resigned about two and a half years ago to become superintendent of the company's terminal division at that point. As an operating official Mr. Cummings demonstrated the fact that he is qualified to make a record and the fact that he was promoted to

J. P. CUMMINGS.

a more responsible position last month bears out the belief that his qualifications are beyond question. It is nothing unusual to record the fact that railway station agents are being promoted in the operating department. Their duties seem to fit them for great responsibilities. Mr. Cummings' past has been a series of promotions, which establishes the belief that he certainly is destined for the top. He is of the kind that is usually found there, or at least, on the way. Mr. Cumming's new office is at Beardstown, Ill.

* * *

Here is an inspiration for this season's campaign spellbinder who is looking for suggestions to give the railroads. A Mongolian railway president by the name of Chin Gee Hee receives the magnificent salary of $80 per month for being the executive head and chief engineer of a transportation system. President Hee's road has just been opened in the Hongkong hinterland (whatever that is) and it requires the services of six locomotives to handle the company's traffic. Why can't the legislators of this country fix railway president's salaries at $80 per month? President Chin Gee Hee is quoted as saying that his chief difficulty in building the road was in overcoming the prejudice of the natives, who believed that the smoke from the locomotives would ruin their crops. Of the six locomotives used on his system, four of them came from the United States, the others from Germany.

* * *

An old-time newspaper man of Missouri once made the remark that he was "an old man and has had many troubles, but the most of them never happened." I believe there is a great deal of philosophy in the above remark. How many railroad men have had the same kind of grief—that is the kind that never happened. It is easy to anticipate trouble in all walks of life, excepting ours, but if mankind never worried over what he can help nor over what he can't help, he would be in a far better condition mentally and physically to handle the everyday affairs as they come to hand. It is easy to philosophize over such things when they are past or when some one else has them to contend with, but the man who can always be a cheerful optimist is a genius rare and fortunate.

* * *

The name of Africa has no terrors for the railroad men of Oklahoma. Early last month a colored man got on a south-bound train in Kansas, and took a seat in the coach with white passengers. When the train reached the Oklahoma line he was requested to move into the colored compartment. He objected and said that as he belonged in Africa he was a foreign subject and should not be required to observe the railroad rules. The conductor cared neither for Africa nor the belief of its subjects, and soon after the train reached Vinita, Okla., Mr. Africa found himself in the hands of the law regardless of the allegation that he was a "foreign subject." It cost him $25 in United States money before he was given his liberty.

NATIONAL ASSOCIATION OF FREIGHT TRAFFIC AGENTS.

The National Association of Freight Traffic Agents will hold their annual convention on June 17 at Put-in-Bay, O., the famous Hotel Victory being the headquarters. President C. F. Wood has issued the following "Joint Freight Tariff": "National Association of Freight Traffic Agents, Rail and Lake, from all points in the United States to Put-in-Bay, O., applying via any and all routes, and the following ports: Cleveland, Detroit, Sandusky, Toledo for members and their families. All double first-class, rate—free. This tariff has not been filed with the Interstate Commerce Commission. It is the only interstate tariff in existence not subject to federal supervision or a ruling by the legal department. It is an advance notice of the official invitation and itinerary of the annual convention of the National Association of Freight Traffic Agents, to be held at Hotel Victory, Put-in-Bay, O., June 17, 18 and 19, 1908."

The officers of the association are as follows: President, C. F. Wood, B. & O. Ry., Cleveland, O.; vice-presidents, W. J. Byrth, G. N. Ry., Cincinnati, O.; W. S. Campbell, Wisconsin Central, Pittsburg, Pa.; J. T. Whalen, Mexican Central Ry., Chicago; secretary, John Hild, Union Pacific, Cincinnati; treasurer, E. H. Smith, C., B. & Q., Cleveland; executive committee, Col. T. F. Sweatt, Illinois Central, Detroit, Mich.; T. B. McCabe, Illinois Central, Louisville, Ky.; T. S. Trainer, Star Union Line, Columbus, O.; E. F. Demerest, Union Pacific, Buffalo.

A splendid social program has been arranged for the occasion, and special sources of entertainment for the ladies will be provided.

PERSONAL

EXECUTIVE, OPERATING AND PURCHASING.

Paul Morton has been chosen director of the Santa Fe executive board.

C. H. Brightwell has resigned as division superintendent of the Houston & Brazos Valley.

W. J. Jenks has been made chairman of the car allotment of the N. & W., office at Bluefield, Va.

C. W. Hole has been made general manager of the Peach River Lines, office at Galveston, Tex.

W. J. Helmick has been made assistant superintendent of the Fremont & Gulf, office at Winnfield, La.

T. B. Duggan has been made trainmaster of the Erie at Salamanca, N. Y., vice **W. H. Daley**, transferred.

E. W. Morrison has been made trainmaster of the Chicago, Milwaukee & St. Paul at Minneapolis, Minn.

W. E. Skinner has been chosen vice-president of the Denver, Laramie & Northwestern, office at Denver.

Clayton Byers has been made superintendent of the Vera Cruz & Pacific, vice **J. S. Langston**, resigned.

R. O. Cowling has resigned as trainmaster of the Oregon Railroad & Navigation Company at Starbuck, Wash.

W. F. Perdue has been appointed instructor in rules for the Mexican Central, with office at the City of Mexico.

Kepler Johnson has been made assistant division superintendent of the Denver & Rio Grande at Alamosa, Colo.

W. S. Core has been made purchasing agent of the Colorado Springs and Cripple Creek district at Colorado Springs, Colo.

George W. Everett has been appointed assistant to the general manager of the Mexican Central at the City of Mexico.

W. C. Harvey has been made division superintendent of the Chicago Great Western at Red Wing, Minn., vice **O. E. Lundblad.**

George H. Higbee has been appointed manager of the Pacific Coast Steamship Company, office at San Francisco, Cal.

J. P. Cummings, division and terminal superintendent of the Burlington at Kansas City, has been transferred to Beardstown, Ill.

A. W. Anderson has been made general superintendent of the Charleston & Western Carolina, office at Augusta, Ga., vice **G. G. Lynch**, resigned.

F. J. Cramer, chief engineer of the Saratoga & Encampment, has been made superintendent also, vice **B. F. Dunn**, resigned; office at Saratoga, Wyo.

Robert W. Hunt, heretofore assistant general passenger agent of the Southern, has been appointed superintendent of train collectors, office at Atlanta, Ga.

M. B. Campbell has been made storekeeper of the Mexican Central, vice **C. R. Allder**, resigned, as material agent, office at Aquascalientes, Mex.

J. B. Sheldon has been appointed superintendent of telegraph of the Union Pacific, with headquarters at Omaha, Neb., vice **Louis H. Korty**, resigned.

E. W. Smith has been made superintendent dining cars of the Grand Trunk, office at Toronto, Ont., vice **John Watson**, resigned under the pension plan.

O. W. Dynes has been appointed assistant general solicitor of the Chicago, Milwaukee & St. Paul at Chicago, vice **J. A. Russell**, resigned on account of ill health.

W. A. Garrett, chief executive officer of the Seaboard Air Line, has also been made general manager, **T. F. Whittelsey** having resigned from the latter position.

Victor Morawetz will tender his resignation as chairman of the executive committee of the Santa Fe at the meeting of the board of directors to be held on June 3.

E. E. Gibson has resigned as superintendent of terminals of the Kansas City Southern at Port Arthur, Tex., to become traffic manager of the board of trade of Lake Charles, La.

A. J. Davidson, president of the St. Louis & San Francisco, has his jurisdiction extended over the Beaumont, Sour Lake & Western, vice **R. C. Duff**, president of the latter road.

C. E. Carson, formerly with the Missouri Pacific at Kansas City, has been made superintendent of terminals of the Mexican Central at Tampico, Mex., vice **J. J. Lewis**, resigned.

H. D. Swayze has been made general superintendent and purchasing agent of the Kalamazoo, Lake Shore & Chicago, office at South Haven, Mich., vice **James Grant**, assigned to other duties.

G. E. Mason has resigned as superintendent of the Jamestown, Chautauqua & Lake Erie and the office has been abolished. **George F. Asper** has been appointed trainmaster at Jamestown, N. Y.

W. E. D. Stokes has been chosen president of the Chesapeake Western, with office in New York, vice **Robert McM. Gillespie**, resigned. **A. H. Gleason** has been elected vice-president, vice **J. J. Vatable**, resigned.

F. C. Runnells, chief train dispatcher of the Burlington at Aurora, Ill., has been appointed trainmaster of the Chicago & Alton at Dwight, Ill., vice **C. F. Smith**, who has been appointed inspector of transportation, with office at Bloomington, Ill.

H. E. Speaks, superintendent T. & O. C., has been made superintendent of the Hocking Valley, office at Columbus, O. **C. L. Gardner** has been made superintendent of the T. & O. C. at Columbus, and **W. F. Elrod** has been made assistant superintendent of the T. & O. C. at Bucyrus, O.

S. R. Payne, division superintendent of the New York Central, has been appointed general superintendent of the western district at Syracuse, N. Y., vice **L. H. Van Allen**, resigned. **I. H. McEwen**, assistant division superintendent at Albany, N. Y., succeeds **Mr. Payne** at Buffalo, N. Y.

E. J. Cleave has resumed his duties as division superintendent of the Pennsylvania Railroad, with headquarters at Cresson, Pa., and **Allen B. Cuthbert**, principal assistant engineer of the eastern Pennsylvania division, who has been acting superintendent, is relieved of the duties of that position.

C. C. Foltz has been appointed assistant superintendent of the Delaware, Lackawanna & Western at Hoboken, N. J., vice **J. G. Sickles**, resigned. **F. M. Benning** has been appointed passenger trainmaster at Hoboken, vice **Frank Cizek**, who has been appointed superintendent of the Bangor & Portland Railway division. **G. W. Murphy** has been appointed chief dispatcher in place of **Mr. Benning.**

J. T. Gillick has been appointed superintendent of terminals of the Chicago, Milwaukee & St. Paul at Chicago, vice **P. C. Hart**, transferred to the Pacific Coast Line. **P. L. Ruff** has been appointed assistant superintendent of terminals at Chicago, vice **F. H. Myers**, appointed superintendent at Milwaukee, Wis., vice **L. R. Clausen**, who succeeds **Mr. Gillick** as superintendent of the Chicago & Milwaukee division, with headquarters at Chicago.

H. B. Grimshaw, superintendent of the fifth division of the Seaboard Air Line, has removed his office from Americus to Savannah, Ga. The office of superintendent of terminals at Jacksonville, Fla., held by **S. B. Zartman**, has been abolished. **J. G. Glazier**, superintendent of terminals at Savannah, has been appointed trainmaster at Jacksonville, Fla. **George Masten**, trainmaster at Jacksonville, has been appointed chief train dispatcher at Savannah. The office of **G. L. Hurley**, chief train dispatcher at Americus, has been moved to Savannah. **C. H. Dent** has resigned as fuel agent and the office is abolished.

H. G. Clark, acting division superintendent of the Missouri Pacific, has been appointed superintendent of the Colorado division at Pueblo, Colo., vice **A. H. Moll.** **J. E. Snedeker**, superintendent of the southern Kansas division, has been transferred to Osawatomie, Kan., as superintendent of the central Kansas division. **P. A. Buck**, superintendent of the Illinois division, becomes superintendent of the southern Kansas division, with headquarters at Coffeyville, Kan. **W. E. Merrifield** has been appointed superintendent of the Illinois division at Chester, Ill., vice **Mr. Buck.** **D. H. Robinson** succeeds **Mr. Merrifield** as trainmaster at Atchison, Kan.

W. N. Royall, general manager of the Atlantic Coast Line, makes the following announcement: Effective on May 1 the system will be operated in three divisions, divided as follows: First division—**W. H. Newell**, general superintendent, Rocky Mount, N. C.; **W. B. Darrow**, superintendent of transportation. This division will include the Richmond district, with **E. Phenneger** as superintendent at Richmond, Va.; the Norfolk district, **B. J. Hughes**, superintendent, Norfolk, Va.; the Wilmington district, **J. A. Fountain**, superintendent, Wilmington, N. C., and the Columbia district, **G. G.**

Lynch, superintendent, Savannah, Ga. Second division—**J. N. Brand**, general superintendent, Savannah, Ga.; **E. R. Wootten**, superintendent of transportation. The second division will embrace the Charleston district, with **J. C. Murchison**, superintendent, Charleston, S. C.; the Savannah district, **G. D. Pugh**, superintendent, Savannah, Ga.; the Waycross district, **R. A. McCranie**, superintendent, Waycross, Ga.; and the Montgomery district, with **S. B. Bennett**, superintendent, Montgomery, Ala. Third division—**M. Riddle**, general superintendent, Jacksonville, Fla.; **O. H. Page**, superintendent of transportation. The latter division will consist of the Jacksonville district, with **J. C. Higgins**, superintendent, Sanford, Fla.; the Greenville district, **H. O. McArthur**, superintendent, Gainsville, Fla.; and the Lakeland district, **J. F. Council**, superintendent, Lakeland, Fla.

TRAFFIC AND ACCOUNTING.

S. S. Butler has been made general agent of the Frisco at Ft. Smith, Ark.

J. W. McCoach has resigned as local freight agent of the Mexican Central at El Paso, Tex.

E. W. Dorris has been made city passenger agent of the Southern Pacific lines at Houston, Tex.

P. C. Patterson has been appointed commercial agent of the Mobile & Ohio at New Orleans, La.

H. H. Embry has resigned as general freight agent of Rock Island lines west of Missouri river.

Frank Kiley has been appointed traveling freight agent of the Toledo & Ohio Central at Toledo, O.

H. J. Ownes has been appointed commercial freight agent of the Missouri Pacific at Dallas, Tex.

Ernest A. Hamlin has been appointed city passenger agent of the Rock Island Frisco Lines at Detroit, Mich.

C. J. Birchfield has been made advertising manager of the Western Lines of the Santa Fe, office at Los Angeles.

W. H. Leek has resigned as traveling passenger agent of the International & Great Northern at San Antonio, Tex.

E. C. Durham has been appointed general traffic manager of the Texas Southeastern, with headquarters at Diboll, Tex.

George F. MacGregor has been appointed freight claim agent of the Frisco, with office at St. Louis, vice **J. E. Leith**, deceased.

W. H. Reed has been appointed general agent of the Missouri Pacific and the St. Louis, Iron Mountain & Southern at New Orleans, La.

W. S. Wheaton has been appointed traveling freight agent of the Chicago Great Western at Ft. Dodge, Ia., vice **J. L. Sullivan**, resigned.

E. W. Stoddard has been appointed traveling freight agent of the New York Central Fast Freight Lines at Cleveland, O., vice **J. H. Alfred.**

H. S. Carmichael has been appointed general passenger agent of the Canadian Pacific for Great Britain and Europe, with headquarters at London.

Chas. Hamilton has been made traveling passenger agent of the Wabash at Pittsburg, Pa., vice **W. S. Turnbull**, transferred to Milwaukee, Wis.

E. L. Whitney has been appointed commercial agent of the Louisiana Railway & Navigation Company at Dallas, Tex., vice **S. S. Butler**, resigned.

C. H. Kimball has been appointed northern New England agent of the National Despatch-Great Eastern Line at St. Johnsbury, Vt., vice **C. D. Waters.**

E. E. Watson has resigned as assistant general freight agent of the Chicago Great Western at St. Paul, Minn., and it is stated that the position will be abolished.

R. C. Fyfe has resigned as assistant general freight agent of the Cotton Belt at Tyler, Tex., to accept service in Chicago on the uniform classification committee.

E. N. Carter has been appointed commercial agent of the New York Central, the West Shore and the Boston & Albany, at 520 La Salle Street station, Chicago.

J. B. Brooks, general agent of the San Antonio & Aransas Pass at San Antonio, Tex., has been appointed assistant general freight agent, with office at San Antonio.

E. K. Bryan, Jr., has been appointed assistant general freight agent of the Illinois Central at Memphis, Tenn., vice **John Dwyer**, resigned to engage in other business.

J. F. Auch, assistant general freight agent of the Philadelphia & Reading, has been appointed general freight agent, office at Philadelphia, Pa., vice **B. H. Bail**, promoted.

Mark Ford, foreign traffic agent of the Burlington, has been appointed commercial agent at Dallas, Tex., vice **C. W. Andrews**, Texas freight and passenger agent, resigned.

J. F. Ingalls, formerly auditor of the Mobile, Jackson & Kansas City, has been appointed auditor of the Georgia, Florida & Alabama at Bainbridge, Ga., vice **W. H. Carroll.**

Charles McD. Adams, formerly general agent of the Missouri Pacific at Memphis, Tenn., has been appointed general agent of the El Paso & Southwestern at St. Louis, Mo.

R. A. Morris, city passenger and ticket agent of the Kansas City Southern at Beaumont, has been transferred to Kansas City, Mo., in a similar capacity, vice **J. H. Morris.**

L. M. White has been appointed commercial freight agent of the Missouri Pacific at Detroit, Mich., and **R. E. Pierce** has been appointed traveling freight agent at that point.

Edward B. Johns has been appointed general eastern agent of the Minneapolis & St. Louis and the Iowa Central at New York, vice **A. W. Osborn**, eastern freight agent, resigned.

J. M. Sweeney has been appointed traveling freight agent of the Rock Island at Pittsburg, Pa., vice **J. L. Morgan**, resigned. **E. M. Gleason** has resigned as traveling freight agent at Dallas, Tex.

F. W. Pope has been appointed freight claim agent of the Louisiana Western and Morgan's Louisiana & Texas Railroad & Steamship Company at New Orleans, La., vice **C. O. Fourche**, resigned.

A. D. Chambers, assistant treasurer of the Delaware, Lackawanna & Western, has been appointed secretary and treasurer at New York, vice **F. F. Chambers**, deceased. **R. B. Schofield** becomes assistant treasurer.

T. H. Mitchell has been appointed traveling passenger agent of the Cincinnati, New Orleans & Texas Pacific and the Alabama Great Southern at Knoxville, Tenn., vice **S. G. Van Ostrand**, assigned to other duties.

E. F. Stovall has been appointed general agent of the Illinois Central at Birmingham, Ala. **W. Hitzing** has been appointed traveling freight agent at Birmingham. **J. E. Estes** becomes contracting agent at that point.

E. T. Jones, auditor of revenue of the Southern, has been appointed auditor of freight accounts, vice **J. A. Robinson**, who has been appointed assistant auditor of freight accounts, both with headquarters at Washington, D. C.

T. J. Skidmore has been made foreign freight agent of the Erie at New York, vice **W. R. Craw**, transferred. **H. S. Stebbins** has been made general eastern freight agent at New York, vice **M. W. DeWolf**, made special agent at that point.

A. B. Garland has been appointed soliciting freight and passenger agent of the Atlanta & West Point and Western of Alabama at Montgomery, Ala., vice **W. H. Amerine**, who has been appointed traveling freight and passenger agent at that point.

C. D. Waters, heretofore northern New England agent of the National Despatch-Great Eastern Line at St. Johnsbury, Vt., has been appointed general freight and passenger agent of the Montpelier & Wells River, with office at Montpelier, Vt., vice **F. W. Morse**, resigned.

M. L. Robbins has resigned as general passenger agent of the Houston & Texas Central, the Houston, East & West Texas, and the Houston & Shreveport. **T. J. Anderson**, general passenger agent of the Southern Pacific at Houston, Tex., will also assume the duties heretofore performed by **Mr. Robbins.**

L. D. Knowles, general agent of the Missouri Pacific at Milwaukee, Wis., has been appointed general western freight agent at Denver, Colo., vice **H. C. Post**, resigned. **A. R. Malcolm** has been appointed commercial agent at Milwaukee. **F. H. Donahue** has been appointed traveling freight and passenger agent at Milwaukee.

W. L. Fritz has been made auditor of the National Lines of Mexico at Mexico City. **P. H. L. King** has been made auditor of freight receipts; **F. E. Hays** is auditor of passenger receipts; **I. J. Terroba** is auditor of disbursements, and **A. L. Buddee** is auditor of express receipts. **R. T. Boyd** is made freight claim agent; offices at Mexico City.

H. S. Drysdale, general agent of the San Pedro, Los Angeles & Salt Lake at Pittsburg, Pa., has been appointed New England agent of the Missouri Pacific at Boston, Mass. **Louis Klein** has been appointed commercial agent of the latter road at Philadelphia, Pa., and **W. O. Wells** has been appointed traveling freight agent at New York.

B. C. Stevenson has been made assistant general freight agent of the Alton-Clover Leaf roads at Chicago; **W. T. Coulter,** commercial agent at Columbus, O., has been transferred to Cleveland; **G. W. Merrifield** has been made assistant commercial agent at Chicago, and **J. A. Shearn** has been made traveling freight agent at Little Rock, Ark.

C. H. Hurlburt has been appointed traveling freight agent of the Missouri Pacific at Boston, Mass. **A. S. Edmonds** has been appointed commercial freight agent at Birmingham, Ala. **J. W. Hailey** has been appointed traveling freight agent at the latter place. **T. A. Helm,** soliciting freight agent at Dallas, Tex., has been transferred to Houston as traveling freight agent.

J. L. Meek, division passenger agent of the Southern at Knoxville, Tenn., has been appointed assistant general passenger agent at Atlanta, Ga., vice **Robert W. Hunt,** transferred. **J. E. Shipley,** district passenger agent at Nashville, Tenn., has been transferred to Knoxville as division passenger agent. **E. J. Tatom,** city passenger agent at Nashville, becomes district passenger agent.

J. E. Dalrymple, general freight agent of the Grand Trunk, has been appointed assistant freight traffic manager of the Grand Trunk Pacific, with headquarters at Winnipeg, Man. **C. E. Dewey,** assistant general freight agent of the Grand Trunk at Montreal, Que., has been appointed general freight agent of the Central Vermont, with headquarters at St. Albans, Vt., vice **R. L. Burnap,** resigned.

W. R. Lynch, traveling passenger agent of the Big Four at Cleveland, O., has been appointed general agent of the passenger department of that road and the Lake Shore at Cleveland. **D. J. Collver,** city passenger agent of the former road at Cleveland, has been appointed district passenger agent of both roads. **M. E. Gaul,** city passenger agent of the Lake Shore at Cleveland, has had his jurisdiction extended over the Big Four, and **C. B. Blackman** has been made traveling passenger agent of both roads at Cleveland.

ROADWAY AND ENGINEERING.

J. H. Frazer has been made roadmaster of the Fremont & Gulf at Winnfield, La.

C. P. Temple has been made roadmaster of the C., H. & D. at Hume, Ill., vice **C. Nolan.**

G. J. Bell has been made division engineer of the Santa Fe at Marceline, Mo., vice **W. A. Guild.**

Thos. Rolland has been made roadmaster of the B. & O. S. W. at Mitchell, Ind., vice **T. W. Welsh.**

R. A. Bainbridge has been made division engineer of the Esquimalt & Nanaimo at Victoria, B. C.

Geo. H. Burgess has been made principal assistant engineer of the Erie, office at New York city.

T. A. Bailey, roadmaster of the Rock Island, has moved his office from Washington, Ia., to Eldon, Ia.

S. T. Earley has been appointed general roadmaster of the Newton & Northwestern and Ft. Dodge, Des Moines & Southern at Boone, Ia., vice **J. A. Bryant,** resigned.

Walter Shepard, chief engineer of the B. & A., has been made consulting engineer, office at Boston, Mass. **E. E. Stone** has been made chief engineer with office at Boston.

L. G. Morphy, assistant engineer of maintenance of way and construction of the Boston & Albany, has been appointed assistant to the chief engineer at Boston, Mass.

Walter E. Emery, formerly engineer maintenance of way of the Chicago & Alton, has been appointed chief engineer of the Peoria & Pekin Union at Peoria, Ill., vice **Stanley Millard,** resigned.

MECHANICAL.

W. H. Graves has been made general foreman of the C. & S. at Trinidad, Colo.

G. M. Wilson has been made general supervisor over the boiler shops of the American Locomotive Co., office at Schenectady, N. Y.

N. L. Smitham, master mechanic of the Texas Midland, has been appointed master mechanic of the Texas Central at Walnut Springs, Tex.

W. C. Whittaker has been appointed assistant master mechanic of the Rio Grande Western at Helper, Utah, vice **C. E. Deweese,** resigned

J. G. Neuffer, formerly assistant S. M. P. of the Illinois Central, has been made S. M. P. of the road, office at Chicago, vice **Wm. Renshaw,** resigned.

C. H. Burk has been made locomotive superintendent of the Mexican Railway, office at Orizaba, Mex., vice **W. Cockfield,** resigned, to go to Peru.

Frank Hunt, formerly general foreman of the Erie at Susquehanna, Pa., has been transferred to Elmira, N. Y., as general foreman of machinery department.

J. M. Fulton has been made master mechanic of the Mexican Central at Mexico City, vice **S. E. Kildoyle,** transferred to a similar capacity at Chihuahua, Mex.

A. C. Miller has been appointed general foreman of the mechanical department of the Texas Midland at Terrell, Tex., vice **N. L. Smitham,** master mechanic, resigned.

A. S. Barrows, chief motive power clerk of the Rock Island Lines, has resigned to accept a similar position with the Delaware, Lackawanna & Western at Scranton, Pa.

R. W. Bell, master mechanic of the Illinois Central at Waterloo, Ia., has been appointed assistant superintendent of machinery, with office at Chicago, vice **J. G. Neuffer,** promoted.

L. Borneman has been made general foreman boilermaker of the Chicago, St. Paul, Minneapolis & Omaha, in charge of the boiler shops of the entire system, office at St. Paul, Minn.

John R. Thompson, mechanical engineer of the Fitz-Hugh, Luther Company at Hammond, Ind., has been appointed mechanical engineer of the Chicago Great Western, office at Oelwein, Ia.

J. M. Robinson, general foreman of shops of the Wabash at Ft. Wayne, Ind., has been transferred to St. Thomas, Ont., in a similar capacity, vice **W. C. Chambers. Henry Eisle** becomes general foreman at Ft. Wayne.

J. H. Nash, master mechanic of the Illinois Central at Paducah, Ky., has been transferred to Waterloo, Ia., in a similar capacity, vice **R. W. Bell,** promoted. **H. C. Eich,** master mechanic at East St. Louis, Ill., succeeds **Mr. Nash** at Paducah. **A. L. McIntosh,** general foreman at McComb, Miss., has been appointed division master mechanic at East St. Louis.

OBITUARY.

Walter G. Berg, chief engineer of the Lehigh Valley, died suddenly in New York on May 12, aged 50 years.

Walter D. Munson, president of the Munson Steamship Line, died at Brooklyn, N. Y., on April 24, aged 65 years.

Andrew Comstock, president of the Cincinnati, Georgetown & Portsmouth, died at Detroit, Mich., on April 25, aged 69 years.

George Fade, Jr., general western passenger agent of the Lehigh Valley at Chicago, died suddenly at his home with heart disease on May 17.

Leslie P. Farmer, commissioner of the passenger department of the Trunk Line Association, died suddenly in New York on May 1, aged 59 years.

Frederic W. Huidekoper, president of the United Land Company of Florida, and formerly president of the Chicago, Peoria & St. Louis, died at his residence in Washington on April 29, aged 67 years.

George W. Cale, formerly chairman of the Southwestern Tariff Committee, died at his home in St. Louis, Mo., on May 6, aged 65 years. **Mr. Cale** was formerly freight traffic manager of the St. Louis & San Francisco.

William J. Murphy, vice-president of the Cincinnati, New Orleans & Texas Pacific and Alabama Great Southern, died at his home in Cincinnati, O., on May 10 at the age of 60 years. **Mr. Murphy** was born at Greenfield, Mass., on August 23, 1848, and entered railway service in April, 1862, with the Erie. He had been with the Queen & Crescent for the past fifteen years and was chosen vice-president in 1899.

The Brotherhood of Locomotive Engineers opened their biennial convention at Columbus, O., on May 13, at which a large number of delegates were present. This strong and ably managed organization now has membership on 107 railroads. Its growth has been steady till it now has about 70,000 members on its list. Owing to its conservative liberal management the Brotherhood of Locomotive Engineers has won the esteem and confidence of the public and the railway management in America.

PRESIDENT—W. H. MILLS, (L. S. & M. S. Ry.).....Norwalk, Ohio
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TREASURER—J. E. GRAY, (P. C., C. & St. L. Ry).....Cambridge City, Ind.

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Official Organ, RAILWAY JOURNAL, Chicago, Ill.

IS IT PRACTICAL FOR A BONDED MAN TO BELONG TO A LABOR ORGANIZATION?

(TOPIC NO. 4, DISCUSSED AT THE RECENT N. A. R. A. CONVENTION.)

OPENING PAPER BY E. F. SAUR.

It must be admitted by all who have made any examination of facts relative to this subject that bonded men do belong to labor organizations. The very officers of labor unions are bonded, and it is also a fact that passenger conductors on some railroads are bonded and at the same time they are members of a labor organization. With only these illustrations in view, it is evident that at least in some cases it is practical, but as applied to railway agents the question admits of some considerable discussion. The railway agent may be real or an imitation; the realization of a full sense of his responsibilities permits of no alternative other than that he should be agent in its full sense. Far more than he is sometimes aware of, he molds the powerful force known as "public opinion."

The earliest development of organized society in its broad sense of a nation was the lifting of the chosen people out of bondage and taking them through forty years of travel in the wilderness, during which time they were molded into so compact a body that all the subsequent years of adversity and persecution has never broken their national spirit. The reason for this was that they were properly organized. Not only properly, but righteously organized; the Mosaic law is undoubtedly the foundation of all modern law. The wisdom of the laws laid down by Moses cannot be construed as having been developed by man. Boiled down into the Ten Commandments, or, more properly speaking, elaborated from the Ten Commandments, they represent wisdom that is divine, and the perfect organization for its time was the result. It could not have been otherwise. A part of the Commandments are duties to Jehovah and are first named. Those named last are duties to man. Later, with the coming of the Messiah and the New Dispensation, when asked what was the Great Commandment, the Master made reply, which, as with the Commandments, placed the first duty to Jehovah, and second and like unto it, to "Love thy neighbor as thyself." Therefore the only safe test to apply to this question is to consider its relation to the Great Commandments.

Ever since the first organized society there has always been organization of society, and the progress of the ages has depended on how nearly was society perfectly organized.

This day and age is one of organization. Religious, beneficiary, social, political and labor organizations exist, and in proportion as they fulfill the Commandments they progress and will continue to do so.

There is no question but what labor organizations have done great good. But, after all, human nature is pretty much the same in all times, and in the hands of men who lack the essential feature of proper reverence for Jehovah and respect for their fellow-men and their inalienable rights, contained in the Declaration of Independence and guaranteed by the Constitution, they have earned—and who can say but justly—a retrogression, instead of a progression.

The supposed strongest weapon, the boycott, has but recently been declared unconstitutional by the highest court of the land, and an analysis of the principle of the boycott will disclose the fact that it will not bear the test of the Great Commandment.

It and other weapons of organized labor would probably have never been developed had the course of employers always been guided by the same test. But out of this where does the railway agent belong? Representing as he does and should the interests of his company in its broadest sense, how can he afford to ally his name and influence with any force, whether it be organized wealth or organized labor, that will in any sense restrict the full and free discharge of his duties in a manner that will not stand the test of the highest commandments?

Agent means official representative, not only of the traffic department, but of all departments; and to represent all departments intelligently he certainly cannot mix up with any organization that may mix up with any other organization. Above all things he is a harmonizer, and to be such must be free from entanglements with any force that is at all selfish.

Presumably the benefit to an agent from such membership is supposed to be of a material nature. A person located in Missouri is said to be legally entitled to be shown. Certainly it is not consistent nor ladylike—that is, polite—to talk of the work of a lodge unless you are a member. But no organization can escape the conclusion that "By your fruits are ye known." Therefore it is perfectly proper to form some conclusions based on observations.

Until a man has helped himself he cannot consistently ask for help from others. It is sometimes very, very plain to the agent that he really needs more help or more money. But until he has convinced his superior officers of this fact, has he exhausted the means at hand to help himself. The principal facts—actual facts—in connection with the operation of a station can be expressed in figures—often better by comparative figures—and it might not be impertinent to inquire how many agents here and now either have the figures intelligently representing the business operations of their stations at hand or easily accessible. Unless they have, they might be compared to the farmer who leaves his agricultural implements to the weather and cusses the government for his failure to grow wealthy. In short, what an agent knows, he must know for certain. And it is not unreasonable that an officer, as well as a company, should want to be represented by

the best agent that it is possible to secure. You would, if you were in charge and responsible for results.

When this trip is concluded this association will have traveled 17,600 miles by special train, from the Atlantic to the Pacific, and from the Great Lakes of the North to the Gulf of Mexico; will have been in every state of the Union but fourteen, and will have visited two foreign countries.

Aside from an agent's own individual efforts to improve his ability as an agent, so that in reason he may merit advancement and make of himself a better and more useful citizen, there could be no better aid than to belong to and partake of all the pleasures and benefits to be derived from all the conventions of the National Association of Railway Agents.

THE UBIQUITOUS PHOTOGRAPHER.

The censor for the N. A. R. A. columns of the RAILWAY JOURNAL has received a neat little souvenir booklet gotten up by W. N. Felkner, agent N. P. Railway, White Bear Lake, Minn., descriptive of the recent trip of the National Association of Railway Agents to California. It is dedicated "To delightful companions of a delightful trip," and is a very happy and refreshing resume of all that the party witnessed and enjoyed on that occasion. Mr. Felkner shows both wit and acumen in his descriptions and we are glad to know that we have a writer of his ability among us to call upon in the future for contributions to these columns. The narration closes with some lines to an inseparable friend.

He was with us from "San Berdoo,"
San Gabrielle Valley, and the whole state through,
At morn, at noon, and during the night
Our trusty photographer was always in sight.

At Redlands, in the tallyhos,
He studied and watched our every pose;
He was there with his omnipresent slide,
At fair Glenwood, in Riverside.

At Pomona, with "autos" fleet,
We sought to leave him in the lurch;
But when we returned from Ontario's heat,
He was waiting—at the church.

Once aboard the "Gabrillo" for Catalina bound,
We thought we had outwitted him for aye;
But no sooner had our anchor touched the ground
Than he greeted us with smile serene and gay.

At Indian Village we thought his doom was sure,
But lo, there! to our great surprise
We found him with cunning words and looks demure,
Where he had been waiting since early sunrise.

Even midst Mt. Lowe's dizzy peaks and crag
Our friend's perseverance never once did lag.
The heights of the incline held for him no awe
And he shouted in merry glee as he his aim did draw.

Every hour through the livelong day,
Beneath clouds, or sun's bright ray,
'Twas, "Sit here; look this way please,"
The while we prayed for the time of release.

Somewhere in the land where the sun goes down,
We know he will get his immortal crown.
Though the deed was done with fear and dread,
We did drown him in the "Hot Springs" at "Dear Old Arrowhead."

RAILROADS AS PUBLIC BENEFACTORS.

Railroads are built and operated to make money. Railroad systems have introduced entirely new conditions in the commercial and business world. They have lifted, as it were, the entire world from one level to another. They have made conditions possible which but for them would have remained impossible. They have broadened and deepened avenues for employment and for the investment of capital, for the development of wealth, have opened up channels for physical and intellectual activities which never could have been opened up but for their enterprise.

And yet this powerful agency of development, the greatest factor every organized, is regarded by a large portion of the public from a hostile point of view. This is in a sense unexplainable. The railroads have developed the country and have been the main factor in the quadruplication of wealth during the past quarter of a century. In order for the railroads to make one dollar it is necessary for them to make it possible for outside interests to earn nine dollars. Their prosperity rests upon the prosperity of those whose opportunities they create. The true interest of the railroad is to make the country as prosperous as possible. The greater its prosperity the greater theirs. The railroads have no interests in antagonism to the interests of the general public.

And yet we see on all sides a spirit of antagonism borne of false conceptions, false promises and false conclusions. It would be difficult to analyze this condition of mind to its ultimate and to set forth those elementary reasons which actuate the general public in its spirit of hostility to railroad control in general. This attitude cannot be maintained simply because it is a wrong one. The influences that are at work on behalf of progress and on behalf of the greater development of wealth, are working in favor of the railroads. There is an essential harmony between the railroads and general public interests, and despite the appearance to the contrary as manifested in more or less hostile legislation, the latent harmonies between the railroads and the general public are slowly developing.

U. S. G. APLEY,
Ticket Agent B. & O. Ry., Akron, Ohio.

TRAFFIC AND FINANCE.

A grain barge line company has been organized in St. Louis to operate on the Mississippi river between that city and New Orleans. It is understood that leading members of the Merchants' Exchange of St. Louis are interested in the movement.

Six express companies doing business in Indiana, four of them through their presidents, brought suit in the United States District Court last month against the members of the railroad commission of Indiana, to enjoin steps to reduce express rates from 10 to 12 per cent.

The press reports of Iowa infer that railroads are showing greater earnings with the two-cent rate than they did under the three-cent fare. It is stated that eight roads in question enjoyed a net increase of about $385,000 in passenger earnings in the year 1907 over those of 1906.

The Interstate Commerce Commission has recommended to the Senate that express companies be permitted to continue their former practice of helping truck and fruit growers, etc., in finding a market for their products and handling the products through order and commission departments.

The commission appointed to adjust the claims of the Pere Marquette and the Cincinnati, Hamilton & Dayton has decided that the latter should pay the former road the sum of $1,364,387 in full settlement of the claims of each company against the other. Reorganization of the C., H. & D. is expected.

The legal controversy between the Rock Island-Frisco lines and the state of Oklahoma has been temporarily settled and the proposed proceedings against the roads by the state on account of alleged consolidation of offices has been held up by the attorney general, pending action on the part of the roads.

The Illinois Central and the Central of Georgia announced that beginning May 31 through passenger service will be operated between Chicago and Savannah, Ga. The train will operate over the Illinois Central between Chicago and Birmingham, Ala., via Jackson, Tenn., and over the Central of Georgia between Birmingham and Savannah.

The Supreme Court of Texas has decided that the contracts between railroads and express companies for transportation and franks for officers and employes of the two parties are valid and cannot be abrogated by the anti-pass law, which means that the express companies' employes will continue to ride on passes, and that the railroad people may continue the use of their franks over express lines.

MECHANICAL

MASTER CAR BUILDERS' AND AMERICAN RAILWAY MASTER MECHANICS' CONVENTIONS.

Railway Journal's Programme in Supplement

Two of the most important conventions of the year as they relate to railway affairs are to meet this month in Atlantic City, June 17th, 18th and 19th, the Master Car Builders Association will occupy the time, and this meeting will be immediately followed by that of the American Railway Master Mechanics Association covering the 20th, 21st and 22d instants. The Presidents, Executive Committees, and Secretaries of both Associations will have offices in the Marlborough-Blenheim Hotel. The meetings will be in the Greek temple on the pier.

The Railway Journal has for the convenience of those who will be in attendance published with this issue complete programmes of the matters to be considered by the respective organizations. These will accompany

GEORGE N. DOW,
PRESIDENT MASTER CAR BUILDERS' ASSOCIATION.

the Journal in supplemental form, and, being detachable, can be readily used by the members, who will be furnished a copy of the paper by its representative, who will go to the conventions.

We again call attention to the efforts of our paper to give a more careful and complete account of the meetings of mechanical associations as they take place through the year. We invite co-operation from these branches of the transportation service to the extent of giving us the fullest information possible so that our comments and reports may be worth retaining in their files. The Railway Journal is now one of the few trade papers specifically covering railway affairs and having its ownership and headquarters in Chicago, the real railroad center of the world as concerns operation. In our wish to expand and take in the widest field, we want all the encouragement we can consistently secure. Our representative will be in Atlantic City at both conventions to place before the delegates the purposes of our publication and its aims for the future.

W. MCINTOSH,
PRESIDENT AM. RY. MASTER MECHANICS' ASSOCIATION.

MASTER BOILERMAKERS' OFFICERS.

The following officers were chosen at the recent convention of the International Master Boilermakers: President, P. J. Conrath, Mo. Pac. Ry., St. Louis, Mo.; Vice-Presidents, A. E. Brown, L. & N. R. R., Louisville, Ky.; J. J. Fletcher, A. N. Lucas, C. M. & St. P. Ry., Milwaukee, Wis.; W. M. Wilson, I. C. R. R., Chicago, Ill., and G. W. Bennet, N. Y. Cent. R. R., Albany, N. Y.; Secretary, H. D. Vought, New York, N. Y.; Treasurer, Frank Gray, C. & A. R. R., Bloomington, Ill.

OFFICERS OF GENERAL FOREMEN'S ASSOCIATION.

The following officers were chosen at the last convention of the International Railway General Foremen's Association, May 29: President, E. F. Fay, U. P. R. R., Cheyenne, Wyo.; First Vice-President, J. J. Houlihan, Wabash Ry., Ft. Wayne, Ind.; Second Vice-President, G. W. Keller, N. & W. Ry., Portsmouth, O.; Third Vice-President, C. H. Voges, Big Four Route, Bellefontaine, O; Fourth Vice-President, Thos. Zinkan, Delaware, O.; Secretary-Treasurer, E. C. Cook, Railway Journal, Royal Insurance Building, Chicago, Ill. Executive Committee, E. C. Hanse, Chairman, S. A. L. Ry., Savannah, Ga.; L. H. Bryan, D. & I. R. R. R., Two Harbors, Minn.; F. W. Rhuark, B. & O. R. R., Holloway, O.; E. R. Berry, Burlington Ry., Galesburg, Ill., and H. D. Kelly, C. & N.-W. Ry., Chicago, Ill. Place of next convention will be decided by Executive Committee.

R. T. WALBANK.

One of the interesting features at most of the railway association conventions is the railway supplies exhibition. The climax of this class of manufactured goods displayed is at the Master Car Builders' and the Master Mechanics' convention each year. Last year the firms represented at the convention with exhibits and for the purpose of entertaining and mixing with their railway patrons, perfected an organization known as the Railway Supply Manufacturers' Association, and the following are the officers chosen: President, Mr. R. T. Walbank, Glidden Varnish Co., Chicago; vice-president, F. L. De Armond, Protectus Co., Philadelphia; treasurer, Geo. N. Riley, National Tube Co., Pittsburg, Pa.; secretary, Earl G. Smith. Mr. Walbank's headquarters are in the Railway Exchange building, Chicago. He has devoted much of his time the past year to further the interests of the association and to make the coming exposition of railway equipment a great success. Mr.

R. T. WALBANK,
PRESIDENT RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.

Walbank is a worker—he works with an unselfish enthusiasm. Having been identified with the varnish and paint business for over thirty years, he has become an expert in his line of work. Though not a native of Chicago, yet he has lived in that hustling city for thirty-three years and has that push and enterprise for which Chicago people are noted.

THE RAILWAY SUPPLY MAN.

There has been very little written or said about the railway supply man as an indispensable factor in the railway service. When one looks back upon railway equipment as he found it twenty-five or even ten years ago and then compares it with what he sees today he can form only a small idea of what the railway supply manufacturer has done to bring about this wonderful change. New ideas have been brought forth by the manufacturers from the track to the ponderous locomotive. Ofttimes he, the supply man, as he is called, spends hundreds and thousands of dollars to perfect one little device before he offers it to the railroad at a nominal cost. At the annual railway conventions the railway supply firm is found with an ample exhibit showing new devices and practical ideas for the betterment of railway equipment and finer service. At the M. C. B. and the M. M. conventions is this fact particularly so. The exhibits are an educational exposition in themselves and show great enterprise on the part of those who are responsible for them. At the recent convention of the International Railway General Foremen's Association, quite a number of worthy exhibits were made at a considerable expense on the part of the exhibitors. The exhibits being installed and to be installed at Atlantic City this month we are told will surpass any similar effort ever made in this country at these conventions. The railway supply men certainly deserve patronage and success for what they have done and are doing for railway betterment in this and other countries.

RAILWAY FOREMEN AND THEIR CONVENTIONS.

The railway mechanical conventions which are held each year have produced wonderful results in the improvement of railway mechanics. The annual conventions for the discussion of topics and exchange of ideas in general have come to be looked upon as an educational necessity—a portion of a railroad foreman's training. Just at the close of last month two important railway conventions were held—that of the International Railway General Foremen's Association and of the International Master Boilermakers' Association. Both came too late to be fully reported in this issue, as the date for going to press came before the conventions were adjourned or had even transacted much business. However, we shall gladly publish particulars in our July issue. In August the International Railroad Master Blacksmiths are to hold their annual convention at Cincinnati.

The gathering of railway foremen each year speaks well of those who are members of these organizations. It is indicative of ambition to belong to such a body of forceful workers and the railroads are devoting money to their own good when they send their foremen to the conventions. Every foreman should be encouraged to join and attend and their expenses paid. A foreman who takes part in handling important subjects as are taken up at conventions, is performing a duty for his road. He not only gains knowledge that he applies in his shop work, but also learns to help standardize material and work that benefits every company employing his ideas and suggestions.

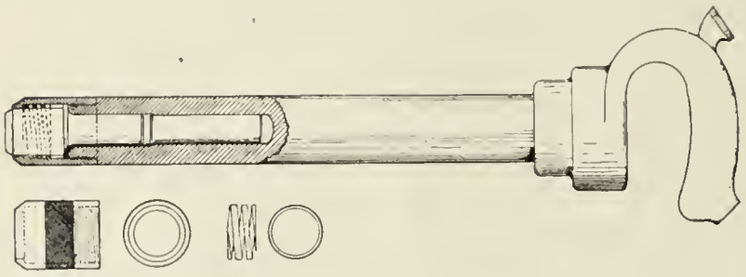
Without these foremen in the shops the railways would make very little advancement in operating service. The indispensable service of the railway mechanic and foreman should never be lost sight of. The very best should be turned to them to aid them in building up the service and keeping it running properly. They are entitled to the best that can be thrown around them for the advancement of railway mechanism, which of course means better service.

We believe that as a general thing the railway management is appreciating more and more the disposition of foremen to take part in association work, but a few words of encouragement from the managements now and then will help to stimulate the men to participate in the educational gatherings each year. Assurance that

every foreman's expenses will be paid, too, when attending the conventions, will help to bring about great convention work. Every road can well afford to send their heads of the mechanical department to conventions. It is money well invested.

MERRELL TOOL RETAINER.

The Railway Journal is indebted to Mr. G. W. Merrell, assistant to the general manager of the Norfolk & Western at Roanoke, Va., for an illustration and description of a tool retainer for pneumatic tools. The device was designed by Mr. E. J. Shoffner, foreman of the N. & W. shops at that point, and was patented by these two gentlemen. Anyone who has been bothered with tools coming out in working with compressed air can appreciate this retainer, the general claims for which are as follows: The combination with the cylinder of a pneumatic tool, of a retainer secured to the forward end thereof and having a chamber therein provided, at its forward



MERRELL TOOL RETAINER.

portion, with an internal wall or shoulder, a working tool contained within said chamber and having a head of lesser diameter than said chamber, a shoulder thereon, a spring interposed between said working tool shoulder and the forward inner wall of said chamber, said spring being of less length than the distance between said shoulder and wall, and a shank for said working tool projecting into the end of said tool cylinder, said shank being of lesser diameter than said button set head and shoulder. 2. The combination of a pneumatic tool cylinder, having a reduced end, a retaining sleeve, having a chamber within it, the rear of said chamber being secured to the reduced end, said sleeve having an opening through its forward portion of lesser diameter than the inner bore of the chamber, a button set having a head of such length as to always project through the opening, the head being of lesser diameter than the bore, a shoulder on said head of greater diameter than the latter and of less diameter than the bore, a compressible element in the chamber of less length than the distance between the button set shoulder and the forward inner wall of the chamber, and a shank on the button set of less diameter than the head and shoulder, the shank projecting rearwardly into the tool cylinder.

BREAKING OF STAYBOLTS.

The following is the report of the Committee on Topic No. 6, General Foremen's Association, "Why Do Staybolts Break More Frequently on the Left Side?"

Your committee has advised with a number of general foremen and foremen of boiler shops, whom it was possible to visit personally, and have taken the matter up by letter with others. The general conclusion from the data obtainable is that there is no reason, so far as can be learned, why staybolts should break on the left side of the locomotive firebox any oftener than upon the right side. The data which appears in the tables given below serves to indicate the general trend of present practice. It has been suggested that the practice of using the injector on the left side almost exclusively, that obtains on some roads, might explain in some cases why the condition suggested by our subject might prevail. This, of course, would be the result of the widely varying temperatures and resulting stresses set up in the steel brought about by the frequent injection of cold feed water. It is clear, of course, that the flow of the cold feed water is downward from the point of injection, and then backward along the barrel and around the bottom section of the mud ring. However, it must be said that this reasoning is not conclusive, as the data obtained fails to substantiate the proof. We feel that there is no need of considering in this connection what conditions might result from the use of an inferior supply of staybolt iron, or from side sheets that might have accidentally passed inspection. In other words, it is not within the province of this report to consider matters which might be classed as constructive accidents.

Below in Table No. 1 is given the report from the foremen boilermakers of the Chicago & Erie Railroad secured and presented by W. H. Clough.

*TABLE 1.

Engine No.	—Broken Staybolts— Left Side.	Right Side.	Excess Left Side Over Right Side.
1756	60	47	13
1757	41	40	1
1758	45	53	—8
1759	31	26	5
1760	23	25	—2
1761	19	25	—6
1762	30	30	0
1763	36	33	3
1764	73	38	35
1765	20	3	17
1766	18	22	—4
1767	14	14	0
1768	27	39	—12
1769	36	40	—4
1771	22	28	—6
1773	27	28	—1
1774	31	29	2
1775	27	30	—3
1777	9	22	—13
1778	5	18	—13
1779	11	9	2
1780	5	8	—3
1782	12	21	—9
Total	622	628	6

*Data from 100-ton freight engines.

Table No. 2 presents the records of staybolts from the Urbana shops of the Cleveland, Cincinnati, Chicago & St. Louis Railway, Peoria and Eastern Division, the data being compiled from February 1, 1908 to May 1, 1908.

TABLE 2.

No.	Type.	—Broken Staybolts— Left Side.	Right Side.	Excess Left Side Over Right Side.
6166	Ten Wheel Frt.	0	3	—3
6167	Ten Wheel Frt.	7	18	—11
6231	Ten Wheel Frt.	7	23	—16
6160	Ten Wheel Pass.	10	15	—5
7076	Eight Wheel Pass.	4	4	0
7081	Eight Wheel Pass.	7	3	4
7080	Eight Wheel Pass.	4	10	—6
6596	Consol. Heavy Frt.	7	5	2
	Total	46	81	—35

It is the wish of your committee that all of the members of the Association who are in position to present data upon this subject shall do so.

With the data in hand, as has been suggested before, the inevitable conclusion is that there is no scientific reason why staybolts should break more often on the left side of the firebox than on the right side, and further that such a condition is not borne out by facts.

A. Bradford, *Chairman.*
W. H. Clough.

APPLYING FLUES AND CARING FOR SAME.

The following is from the paper of C. Letteri, master boilermaker of the Pennsylvania Lines at Columbus, read before the Detroit convention of the International Master Boilermakers' Association:

Best method for applying flues in locomotive boilers: Flue holes should all be of uniform size. Holes should be counterbored on both sides of sheet very slightly. The copper ferrule, when applied should be flush with the sheet on both sides, the flues to be swedged to give a snug fit when applied. Expand with a sectional expander that will grip the flue on both sides

of the flue sheet at the same time and turn the outer side for the bead, and then bead with a beading tool (whatever may be the shop standard) and then a very light rolling for the finish.

Best method for caring for flues while engine is in service and at terminals: 1st. Before the engine arrives at ash pit, care should be taken to have a sufficient amount of water in boiler and not apply injector after the fire has been drawn. 2nd. While drawing the fire, care should be taken that the blower is not put on any stronger than is necessary to take up the gases and smoke, and should be shut off as soon as fire is drawn; the damper should then be closed and be left so until engine is to be fired up for future service.

Which tools give best results in caring for flues at terminals —the roller expanders or sectional expanders?

1st. Flues with iron ends—the roller ought to be omitted and only the sectional expander used. 2nd. Flues with steel ends—the roller may be used on hot work to maintain them until engine comes in for wash-out. When engine is cold, use the sectional expander that has not the shoulder that flares out the bead on the flue.

LOCOMOTIVE CONSTRUCTION IN EUROPE.

In writing to the Bureau of Manufactures from Winterthur, Switzerland, Special Agent G. L. Carden describes a large progressive locomotive works in which he makes some suggestions that will interest manufacturers of American tools. He says in part:

The Schweizerische Locomotive and Maschinen-fabrik, Winterthur, is working at present about 1,800 men. This is one of the best locomotive shops on the continent of Europe. Its engines are sent to all parts of the world. It is doubtful if there is higher finish to be found on any European locomotives than is given here, and the character of the workmanship is exacting. Here, as in Germany, it was observed that for the most part the plate-frame form of construction is being used, but the Swiss shops are about to undertake bar-frame construction, and the first set of bar frames has just been received by the Winterthur shops.

The Swiss Locomotive Works construct gas engines as well as locomotives, but the locomotive branch of the business is the larger. The care bestowed on the locomotive work is noticeable, and great attention is paid to detail. Copper fire boxes and staybolts are the rule, as in other continental shops. The plate frames are first drilled out, but I did not observe any vertical millers for milling the interior edges of the blanks. The head of one of the departments remarked that he would like to put in a tool of the vertical-miller type for this work. The plate frames were being drilled out by Hartmann (Chemnitz) tools, and planed by tools supplied by the same firm. The new bar frames, which have just reached the Swiss shops, are of forged steel, and were received from Germany. I did not understand from my talk with the Swiss locomotive representatives that it is the intention to discard plate-frame construction, but rather to use bar frames for special types of locomotives. Among the engineers in charge of departments here is one gentleman who saw service in the Baldwin Locomotive Works for several months, and whose observations on the general locomotive situation were among the best I have heard in Europe. In fact, the engineers in charge of various departments at the Swiss Locomotive Works impressed me as being men of very high order.

AMERICAN TOOLS BEST BUT HIGH IN PRICE.

A large number of American machine tools were in use in the Winterthur shops, and, as is usual in locomotive works on the continent, there were also a number of the heavier types of English tools. It would seem as if the English machine-tool houses early contributed tools to the continental locomotive shops, and most of these are still in operation. It can be set down as a fairly correct statement that the English tools now being sold in Germany and Switzerland are for the most part from such firms as Herbert, of Coventry; Smith & Coventry, of Manchester; Darling & Sellers, of Keighley; Kendall & Gent, and Richards.

The heavier machine tools at the Swiss Locomotive Works, outside of those furnished by English houses, are mostly of German and Swiss (Oerlikon) design, and the American representation is largely confined to lathes, millers, shapers and drill presses. The opinion was expressed at the Swiss works that too much money is being asked at present for the average make of American machine tools. The firm, it was stated, might recently have ordered a certain American boring mill, but the price asked was about twice as much as was demanded for a good German machine. It was correct to admit, it was said, that the American machine was a somewhat better tool, but the Swiss engineers did not think it better to the extent of nearly double the price of the German make. On the other hand, it was remarked, such a tool as a Warner & Swasey hexagonical lathe was a splendid machine and was worth its high price.

A GREAT STEEL INDUSTRY.

The Friedrich Krupp works at Essen, Germany, employ 65,000 workmen. This big plant turns out large products besides guns. It is claimed that the real "gold mine" was struck by this plant when Krupp discovered a means for making steel tires for railway wheels. The founder of the Krupp works was Friedrich Krupp, who started to manufacture crucible steel in 1811. In 1826 he died, and his son, Alfred Krupp, succeeded his father and has made the plant famous the world over. Essen is essentially notable for its crucible nickel steel. There is so-called crucible nickel steel made elsewhere in the world, but so far as known the Krupp material is unexcelled. This accounts for the large exportation of Krupp crucible nickel steel to the United States. In the case of engine parts, where heavy strains are exerted, manufacturers feel the necessity of acquiring the best steel obtainable regardless of origin. The process of making crucible nickel steel at the Krupp works is jealously guarded, although, as one official remarked, even if all the details were known the steel could not be made in America or elsewhere, since only the Krupp works possess both the requisite organization and experience. This crucible nickel steel is almost exclusively used by Krupp for gun work, and accounts in a large measure for the high reputation of Krupp ordnance. For a given caliber Krupp can be expected to produce a lighter gun and one capable of withstanding greater pressure, which means a greater muzzle velocity and striking energy. This fact was demonstrated when Krupp, some few years ago, poduced a field gun after American specifications which afforded a greater effective shrapnel range of less weight than the type American gun, according to the United States consular reports.

The various kinds of steel manufactured at the Essen works comprise crucible steel, Martin (open-hearth) steel, puddled steel, Bessemer steel, and hard steel. Besides the grades mentioned, alloys of steel, with tungsten, nickel, chromium, molybdenum, are produced for particular purposes. Crucible steel as above mentioned is mainly used for guns. It is also employed for armor-piercing shells, and for the important structural parts of locomotives, engines, and hoisting machinery, armor-plate rolls and mint rolls, and for other rolls in which a minimum of wear and tear is desirable, and which at the same time demand the greatest possible safety against breakage. In this last-mentioned class are tires and axles, and tool and spring steel. Martin (open-hearth) steel is used for the various requirements of shipbuilding, such as plates and angles, for armor plate, for projectiles other than armor piercing, gun carriage parts, boiler plates, and the like. Steel castings from both crucible and Martin steel are produced for numerous purposes, the chief product being frogs and crossings for railroads, wheels for locomotives and cars, certain ship-building elements such as stems and sternposts, rudders and propellers, and castings for building structures.

Puddled steel, while mainly used at the works as raw material for crucible steel, is also furnished the market for the manufacture of spoke-wheel centers and welded disk-wheels.

The Bessemer steel is worked up into rails, and also enters the market in the shape of bars for the manufacture of tools, springs, wires, and plates. The nickel crucible steel is of a special and approved composition and combines the good qualities of soft, fibrous, wrought iron with the high tensile strength of the best kind of steel.

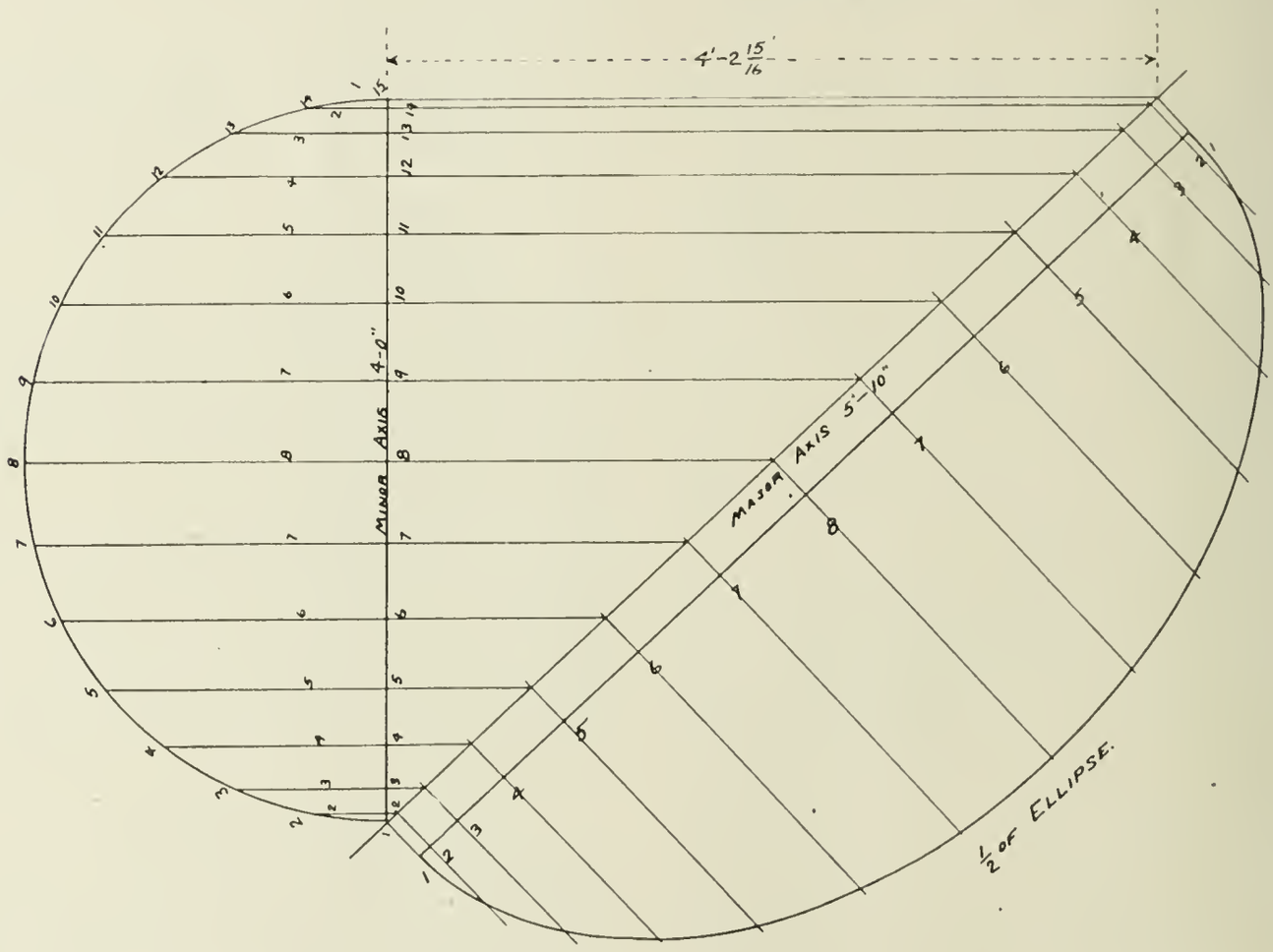
Krupp is also turning out some special grades of steel for motor cars, possessing extraordinarily high tensile strength, with elasticity and tenacity. Hard steel is so tenacious an alloy that it does not allow of machining, and is applied in the manufacture of crushing machinery, dredges, trailing wheels, mandrils, and safes. In addition to the various kinds of steel mentioned, Krupp produces cast iron, wrought iron, and bronze for special purposes, the latter chiefly for propeller blades and shaft jackets.

Under products for general industry Krupp produces railway material, including wheels, tires, axles, springs, boiler plates, frame plates, pressed car frames, structural parts of locomotives, rails, switches, frogs, portable railroad plants, together with requisite rolling stock; ship-building material, machinery parts, sheet steel and sheet iron, rolls, tool steel, steel for motor-car building, hard steel for stone breakers, dredges, etc., and steel bars of special qualities.

It has been suggested that on account of the disposition of the company to use old-time tools there should be good opportunities now for Americans to introduce modern tools at these works. In the sixty odd departments there are more than 6,500 machine tools in use. There are 155 steam hammers, 21 transmission hammers, 74 hydraulic presses, two presses measuring 7,000 tons each (bending), one of 5,000 and one of 2,000 tons, respectively, for forging purposes. There are over 300 stationary steam boilers, more than 70 locomotive steam boilers, about 540 steam engines, aggregating nearly 60,000 horsepower, and considerably more than 700 cranes. During the year 1906 the combined Krupp works consumed 1,285,310 tons of coal, of which quantity the Essen works used 813,155 tons. In addition, there was used coke and briquettes, which make, substituting for coal and briquettes their equivalents in coal, a total of 2,361,425 tons.

STEEL BELTING.

One of the newest methods of transmitting power in the operation of shop machinery is steel belting. A firm in Charlottenburg, Germany, is testing this method in a practical way. No doubt the idea has been suggested by the steel band saw used quite extensively in this and other countries. The superiority claimed for this method of transmitting power is on account of its solidity. A much narrower band can be used, one-sixth of the width of the usual leather band being sufficient; as a result of this the steel band is not so heavy as the usual leather band, and, as it can be very tightly adjusted, the distance between the engine and the machine is not a matter of importance, as is the case with the leather belting, where the transmission of power is dependent upon the weight of the hanging belt; by a unique contact, the slipping is much reduced, experiments having shown that this does not exceed one-tenth of 1 per cent. Careful and repeated experiments have shown that the entire loss of power is very small, and as far as can be ascertained will not exceed 1 per cent. Further, owing to the lightness of weight of the steel belting, it is claimed, the influence of the centrifugal force is not so great and allows of a much increased velocity.



LAYOUT OF END OF PIPE AND ELLIPSE.

LAYOUT OF END OF PIPE AND ELLIPSE.

The question has been asked how to lay out the pipe and ellipse of a pipe 4 inches inside diameter, setting at an unknown angle from an ellipse on a plane surface of 4 feet axis and 5 feet 10 inches major axis.

In the May, 1905, issue of the RAILWAY JOURNAL was published an answer, also the layout, which we reproduce with layout. The length is 4 feet, 2 15-16 inches, obtained by the following rule: equals 4 feet, 2 15-16 inches, where A equals major axis and B equals minor axis.

ECONOMIC METHOD OF WELDING TUBES.

Two American employes in a tube factory in the vicinity of Birmingham, England, have invented an improved method for the manufacture of welded steel and iron tubes, and it is claimed that the patent, which is successfully used in that district, not only assures a more perfect weld, but permits of great economy in the making of tubes. The process consists of blowing cold air, or air and gas, upon the edges of the steel or iron strip which is to be welded. In practice the air blast alone is used, because it is regarded as better; but a combination of air and gas can also be employed. The effect of the air blast upon the iron or steel bar, which is drawn through the furnace at what is regarded as welding heat, is similar to that of blowers on coal or wood—it more than doubles the temperature of the edges.

PROGRAM FORTY-SECOND ANNUAL CONVENTION

OF THE

Master Car Builders' Association

ATLANTIC CITY, N. J.

June 17, 18 and 19, 1908

OFFICERS FOR 1907-8

President, Geo. N. Dow, Gen'l Mech. Insp., L. S. & M. S. Ry., Cleveland, Ohio.

1st Vice-President, R. F. McKenna, M. C. B., D. L. & W. R. R., Scranton, Pa.

2d Vice-President, R. W. Burnett, A. M. C. B., Canadian Pacific Ry., Montreal, Can.

3d Vice-President, T. M. Ramsdell, M. C. B., Chesapeake & Ohio Ry., Richmond, Va.

Treasurer, John Kirby, Adrian, Mich.

Executive Members.

D. F. Crawford, Pennsylvania Lines, Pittsburgh, Pa.
F. H. Clark, C. B. & Q. R. R., Chicago, Ill.
T. H. Curtis, L. & N. R. R., Louisville, Ky.
J. F. Walsh, C. & O. Ry., Richmond, Va.
F. N. Hibbits, L. V. R. R., South Bethlehem, Pa.
F. T. Hyndman, New Haven, Conn.

Secretary, Jos. W. Taylor, 390 Old Colony Bldg., Chicago, Ill.

STANDING COMMITTEES

Arbitration.

J. J. Hennessey (Chairman), M. C. B., C. M. & St. P. Ry., Milwaukee, Wis.
P. H. Peck, M. M., C. & W. I. Ry., Chicago, Ill.
E. D. Bronner, S. M. P., M. C. R. R., Detroit, Mich.
T. W. Demarest, S. M. P., Pennsylvania Lines (West), Ft. Wayne, Ind.
C. A. Schroyer, S. C. D., C. & N.-W. Ry., Chicago, Ill.

Supervision of Standards and Recommended Practice.

T. S. Lloyd (Chairman), S. M. P., D. L. & W. R. R., Scranton, Pa.
J. E. Buker, A. S. M., I. C. R. R., Chicago, Ill.
T. M. Ramsdell, M. C. B., C. & O. Ry., Richmond, Va.
W. C. A. Henry, S. M. P., Pennsylvania Lines, Columbus, Ohio.
G. H. Gilman, Supt. Shops, Nor. Pac. Ry., St. Paul, Minn.

Triple Valve Tests.

A. J. Cota (Chairman), M. M., C. B. & Q. R. R., Chicago, Ill.
F. H. Scheefer, S. M. P., N. C. & St. L. Ry., Nashville, Tenn.
R. K. Reading, S. M. P., Pennsylvania R. R., Buffalo, N. Y.
E. W. Pratt, M. M., C. & N.-W. Ry., Missouri Valley, Iowa.
D. C. Ross, M. C. B., M. C. R. R., Detroit, Mich.

Brake Shoe Tests.

W. F. M. Goss (Chairman), University of Illinois, Urbana, Ill.
B. D. Lockwood, M. E., C. C. C. & St. L. Ry., Indianapolis, Ind.
Geo. W. West, S. M. P., N. Y. O. & W. Ry., Middletown, N. Y.

Tests of M. C. B. Couplers.

R. N. Durborow (Chairman), S. M. P., Pennsylvania R. R., Altoona, Pa.
G. W. Wildin, Mech. Supt., N. Y. N. H. & H. R. R., New Haven, Conn.
F. W. Brazier, S. R. S., N. Y. C. & H. R. R. R., New York City.
T. H. Curtis, S. M., L. & N. R. R., Louisville, Ky.
F. H. Stark, S. R. S., Pittsburgh Coal Co., Coraopolis, Pa.

Revision of Rules for Loading Long Materials.

A. Kearney (Chairman), A. S. M. P., N. & W. Ry., Roanoke, Va.
C. E. Fuller, A. S. M. P., Un. Pac. R. R., Omaha, Neb.
A. Stewart, G. S. M. P., Sou. Ry., Washington, D. C.
F. H. Clark, G. S. M. P., C. B. & Q. R. R., Chicago, Ill.
G. S. McKee, S. M. P., M. & O. R. R., Mobile, Ala.
J. S. Lentz, M. C. B., L. V. R. R., So. Bethlehem, Pa.
W. F. Kiesel, Jr., A. E. M. P., Penna. R. R., Altoona, Pa.
L. H. Turner, S. M. P., Pittsburgh & Lake Erie R. R., Pittsburgh, Pa.

Cast Iron Wheels.

Wm. Garstang (Chairman), S. M. P., C. C. C. & St. L. Ry., Indianapolis, Ind.
A. S. Vogt, M. E., Penna. R. R., Altoona, Pa.
H. J. Small, G. S. M. P., Sou. Pac. Co., San Francisco, Cal.
W. E. Fowler, M. C. B., Can. Pac. Ry., Montreal, Canada.
R. L. Ettinger, C. M. E., Sou. Ry., Washington, D. C.
R. F. McKenna, G. F. C. D., D. L. & W. R. R., Scranton, Pa.
J. E. Muhlfeld, G. S. M. P., B. & O. R. R., Baltimore, Md.

COMMITTEES FOR CONVENTION OF 1908

1.—*Journal Box and Pedestal for Passenger Cars with Journals 5 by 9 and 5½ by 10 inches.*

C. A. Seley (Chairman), M. E., C. R. I. & P. Ry., Chicago, Ill.
E. A. Benson, M. E., Pullman Co., Chicago, Ill.
J. J. Tatum, G. C. F., B. & O. R. R., Baltimore, Md.

2.—*Marking Freight Equipment Cars.*

R. L. Kleine (Chairman), G. C. I., Penna. R. R., Altoona, Pa.
W. O. Thompson, M. C. B., N. Y. C. & H. R. R. R., Buffalo, N. Y.
T. H. Russum, S. C. D., B. & O. R. R., Baltimore, Md.
C. B. Young, M. E., C. B. & Q. R. R., Chicago, Ill.
J. F. Dunn, S. M. P., O. S. L. R. R., Salt Lake City, Utah.

3.—*Air Brake Hose.*

Le Grand Parish (Chairman), S. M. P., L. S. & M. S. Ry., Cleveland, Ohio.
Jas. Milliken, S. M. P., P. B. & W. Ry., Wilmington, Del.
R. W. Burnett, A. M. C. B., Can. Pac. Ry., Montreal, Can.
R. F. Kilpatrick, Scranton, Pa.
J. A. Carney, S. S., C. B. & Q. R. R., Burlington, Iowa.

4.—*Automatic Connectors.*

G. C. Bishop (Chairman), S. M. P., Long Island R. R., Richmond Hill, N. Y.
F. M. Gilbert, M. E., N. Y. C. & H. R. R. R., New York City.
J. F. DeVoy, M. E., C. M. & St. P. Ry., Milwaukee, Wis.
J. M. Shackford, C. D., D. L. & W. R. R., Scranton, Pa.
Henry Bartleit, G. S. M. P., Boston & Maine R. R., Boston, Mass.

5.—*Bracing of Steel Freight Cars*

R. B. Kendig (Chairman), M. E., L. S. & M. S. Ry., Cleveland, Ohio.
W. F. Bentley, G. C. F., B. & O. R. R., Baltimore, Md.
W. J. Buchanan, M. C. B., B. & L. E. R. R., Greenville, Pa.
W. F. Eberle, G. F., Penna. R. R., Altoona, Pa.
W. T. Gorrell, M. C. B., P. & R. R. R., Reading, Pa.

6.—*Side Bearings and Center Plates*

R. D. Smith (Chairman), S. M. P., N. Y. C. Lines, Boston, Mass.
R. P. C. Sanderson, S. M. P., Virginian Ry., Norfolk, Va.
A. Lovell, Philadelphia, Pa.
D. F. Crawford, G. S. M. P., Penna. Lines, Pittsburgh, Pa.
J. H. Manning, S. M. P., D. & H. Co., Albany, N. Y.

7.—*Steel Passenger Cars.*

A. M. Waitt (Chairman), Mechanical Engineer, New York City.
T. Dunbar, M. E., Pullman Co., Chicago, Ill.
J. McE. Ames, M. E., American Car & Fdy. Co., New York City.
C. E. Lindstrom, C. E., Pressed Steel Car Co., Allegheny, Pa.
W. B. Ott, A. E. M. P., Penna. R. R., Altoona, Pa.
R. L. Gordon, Asst. to Prest., Standard Steel Car Co., New York City.
W. R. McKeen, Jr., S. M. P. & M., Un. Pac. Ry., Omaha, Neb.

8.—*Ventilating and Heating of Passenger Cars.*

S. G. Thomson (Chairman), care of Asst. Gen'l Mgr., P. R. R., Philadelphia, Pa.
B. P. Flory, M. E., C. R. R. of N. J., Jersey City, N. J.
T. H. Goodnow, M. C. B., L. S. & M. S. Ry., Chicago, Ill.

9.—*Protective Coatings for Steel Cars.*

G. E. Carson (Chairman), M. C. B., P. & L. E. R. R., McKees Rocks, Pa.
T. Rumney, M. S., Erie R. R., Meadville, Pa.
S. A. Cromwell, G. C. I., B. & O. R. R., Painesville, Ohio.

10.—*Location of Ends of Running Boards.*

E. A. Miller (Chairman), S. M. P., N. Y. C. & St. L. R. R., Cleveland, Ohio.
T. A. Treleaven, M. C. B., Grand Trunk Ry., London, Ont.
R. H. Parks, Mgr. Car Shops, M. D. T. Co., Despatch, N. Y.
F. W. Chaffee, G. C. I., N. Y. C. & H. R. R. R., Albany, N. Y.
Jas. Coleman, M. C. B., Grand Trunk Ry., Montreal, Can.

11.—*Side and End Door Fixtures.*

C. S. Morse (Chairman), M. C. B., W. & L. E. R. R., Toledo, Ohio.
J. A. McRae, M. E., Mich. Cent. R. R., Detroit, Mich.
W. Percy, M. C. B., Wis. Cent. R. R., Fond du Lac, Wis.
O. M. Stimson, M. C. B., Swift Refr. Trans. Co., Chicago, Ill.
J. P. Young, G. F. C. D., Mo. Pac. Ry., St. Louis, Mo.

12.—*Tank Cars.*

A. W. Gibbs (Chairman), G. S. M. P., Penna. R. R., Altoona, Pa.
C. M. Bloxham, M. C. B., Union Tank Line, New York City.
F. T. Hyndman, New Haven, Conn.
Wm. McIntosh, S. M. P., C. R. R. of N. J., Jersey City, N. J.
S. K. Dickerson, A. S. M. P., L. S. & M. S. Ry., Cleveland, Ohio.

13.—*Passenger Car Rules of Interchange.*

I. S. Downing (Chairman), M. C. B., L. S. & M. S. Ry., Collinwood, Ohio.
R. S. Miller, G. F. C. D., N. Y. C. & St. L. Ry., Cleveland, Ohio.
H. E. Passmore, M. M., T. & O. C. R. R., Kenton, Ohio.

14.—*Protection of Trainmen*

C. A. Seley (Chairman), M. E., C. R. I. & P. Ry., Chicago, Ill.
R. F. McKenna, G. F. C. D., D. L. & W. R. R., Scranton, Pa.
F. M. Whyte, C. M. E., N. Y. C. Lines, New York City.
A. La Mar, A. G. C. I., Penna. Lines, Ft. Wayne, Ind.
C. B. Young, M. E., C. B. & Q. R. R., Chicago, Ill.
E. Posson, Engr. Car Const., A. T. & S. F. Ry., Chicago, Ill.
T. H. Curtis, S. M., L. & N. R. R., Louisville, Ky.
B. Julien, G. F. C. D., Un. Pac. R. R., Omaha, Neb.
W. K. Carr, G. F., N. & W. R. R., Roanoke, Va.

Subjects

W. E. Symons (Chairman), Chicago, Ill.
Wm. Forsyth, M. E., Railway Age, Chicago, Ill.
H. La Rue, M. C. B., C. R. I. & P. Ry., Chicago, Ill.

FIRST SESSION

Wednesday, June 17, 1908

10:00 A. M. to 1:30 P. M.

Prayer, 10:00 A. M. to 10:05 A. M.
Address of President, 10:05 A. M. to 10:15 A. M.
Intermission, 10:15 A. M. to 10:20 A. M.
To permit visitors to retire, although all are requested to remain.
Reports of Secretary and Treasurer, 10:20 A. M. to 10:30 A. M.
Assessment and announcement of annual dues; appointment of Committees on Correspondence, Resolutions, Nominations, Obituaries, etc., 10:30 A. M. to 10:10 A. M.
Election of Auditing Committee, 10:10 A. M. to 10:45 A. M.
Unfinished Business, 10:15 A. M. to 10:50 A. M.
New Business, 10:50 A. M. to 11:00 A. M.
Discussion of Reports on:
Revision of Standards and Recommended Practice, exclusive of Protection to Trainmen, 11:00 A. M. to 11:15 A. M.
Triple Valve Tests, 11:15 A. M. to 11:30 A. M.
Brake Shoe Tests, 11:30 A. M. to 12:00 M.
Topical discussion:
Stresses to which car wheels are subjected. To be opened by Mr. Geo. L. Fowler, 12:00 M. to 1:00 P. M.
Discussion of Report on Tests of M. C. B. Couplers, 1:00 P. M. to 1:30 P. M.

Adjournment.

SECOND SESSION

Thursday, June 18, 1908

9:00 A. M. to 1:30 P. M.

Discussion of Reports on Revision of Rules for Loading Long Materials, 9:00 A. M. to 9:15 A. M.
Cast Iron Wheels, 9:15 A. M. to 10:00 A. M.
Rules of Interchange, including decisions rendered during the year by the Arbitration Committee, and report of Arbitration Committee on Revision of both Freight and Passenger Car Rules, 10:00 A. M. to 10:15 A. M.
Journal Box and Pedestal for Passenger Cars with Journals 5 by 9 and 5½ by 10 inches, 10:15 A. M. to 10:30 A. M.
Marking of Freight Equipment Cars, 10:30 A. M. to 10:45 A. M.
Air Brake Hose, 10:45 A. M. to 11:00 A. M.
Automatic Connectors, 11:00 A. M. to 11:15 A. M.
Bracing of Steel Freight Cars, 11:15 A. M. to 11:30 A. M.
Side Bearings and Center Plates, 11:30 A. M. to 12:00 M.
Topical Discussions:
1. Manganese or other special steel coupler knuckles. Does it pay to use them? If so, what is the difference in cost from other steel knuckles?

To be opened by Mr. S. P. Bush, 12:00 M. to 12:30 P. M.
2. The abolishment of the brake beam safety chain.

To be opened by Mr. J. J. Hennessey, 12:30 P. M. to 1:00 P. M.
Discussion of Report on Steel Passenger Cars, 1:00 P. M. to 1:30 P. M.

Adjournment.

THIRD SESSION

Friday, June 19, 1908

9:00 A. M. to 1:30 P. M.

Discussion of Reports on:
Ventilation and Heating Passenger Cars, 9:00 A. M. to 9:30 A. M.
Protective Coatings for Steel Cars, 9:30 A. M. to 9:45 A. M.
Location of Ends of Running Boards, 9:45 A. M. to 10:00 A. M.
Protection of Trainmen, 10:00 A. M. to 10:30 A. M.
Side Door and End Door Fixtures, 10:30 A. M. to 10:45 A. M.
Tank Cars, 10:45 A. M. to 11:00 A. M.
Subjects, 11:00 A. M. to 11:15 A. M.
Unfinished business:
Reports of Committees on Correspondence, Resolutions and such other committees as may be named during the Convention, 11:15 A. M. to 12:00 M.
Topical discussions:
1. Should journals of standard axles, when fillets are partially worn, be made longer in order to get in a full size fillet? If so, what should be the limit of the length of journals?

To be opened by Mr. W. E. Fowler, 12:00 M. to 12:20 P. M.
2. The advantages and disadvantages of the all-steel box cars.

To be opened by Mr. W. R. McKeen, Jr., 12:30 P. M. to 1:00 P. M.
Election of Officers, 1:00 P. M. to 1:30 P. M.

Adjournment.

PROGRAM FORTY-FIRST ANNUAL CONVENTION

OF THE

American Railway Master Mechanics' Association

ATLANTIC CITY, N. J.

June 22, 23 and 24, 1908

OFFICERS FOR 1907-8

President, Wm. McIntosh, S. M. P., Cent. R. R. of New Jersey, Jersey City, N. J.

1st Vice-President, H. H. Vaughan, Asst. to Vice-President Can. Pac. Ry., Montreal, Can.

2d Vice-President, G. W. Wildin, M. S., N. Y., N. H. & H. R. R., New Haven, Conn.

3d Vice-President, F. H. Clark, G. S. N. P., C. B. & Q. R. R., Chicago, Ill.

Treasurer, Angus Sinclair, New York City.

Secretary, Jos. W. Taylor, 390 Old Colony Building, Chicago, Ill.

Executive Members:

A. E. Mitchell, New Haven, Conn.
C. E. Fuller, A. S. M. P. & M., Un. Pac. R. R., Omaha, Neb.
T. H. Curtis, S. M., L. & N. R. R., Louisville, Ky.
C. A. Seley, N. E., C. R. I. & P. R. R., Chicago, Ill.
John Howard, S. M. P., N. Y. C. & H. R. R. R., New York.
F. M. Whyte, G. M. E., N. Y. C. Lines, New York.

COMMITTEES 1908 CONVENTION

1.—*Mechanical Stokers*

Wm. Garstang, Chairman,
J. F. Walsh, D. F. Crawford,
Geo. S. Hodgins, L. R. Johnson,
Committee.

2.—*Blanks for Reporting Work on Engines Undergoing Repairs*

T. H. Curtis, Chairman,
E. W. Pratt, T. F. Barton,
C. E. Chambers, Henry Bartlett,
Committee.

3.—*The proper amount to which the gauge of track should be widened on curves of different radii to secure the best results with engines having different lengths of Rigid Wheel Base.*

F. M. Whyte, Chairman,
W. H. Lewis, F. C. Cleaver,
Committee.

4.—*The Apprenticeship System.*

C. W. Cross, Chairman,
G. M. Basford, B. P. Flory,
W. D. Robb, John Tonge,
A. W. Gibbs, F. W. Thomas,
Committee.

5.—*Superheating.*

H. H. Vaughan, Chairman,
Le Grand Parish, R. D. Hawkins,
Committee.

6.—*Best System of Washing Out and Refilling Locomotive Boilers.*

H. T. Bentley, Chairman,
S. K. Dickerson, L. H. Turner,
M. E. Wells, H. E. Passmore,
Committee.

7.—*Castellated Nuts.*

R. B. Kendig, Chairman,
I. F. De Voy, Jno. Player,
G. S. Edmonds, H. P. Meredith,
J. N. Mowery,
Committee.

8.—*Mallet Compounds.*

J. E. Muhlfeld, Chairman,
G. H. Emerson, T. Rumney,
F. H. Clark, C. J. Mellin,
Committee.

9.—*Balanced Compounds.*

E. D. Nelson, Chairman,
John Howard, J. F. Graham,
A. Lovell, W. L. Austin,
Committee.

10.—*Sizes and Capacity of Safety Valves for Use on Locomotive Boilers.*

F. M. Gilbert, Chairman,
Jas. Milliken, G. W. Wildin,
J. H. Manning,
Committee.

11.—*Revision of Standards.*

W. H. V. Rosing, Chairman,
T. W. Demarest, C. B. Young,
Committee.

12.—*Subjects.*

C. A. Seley, Chairman,
L. R. Pomeroy, D. F. Crawford,
Committee.

FIRST SESSION

Monday, June 22, 1908

9:30 A. M. to 1:30 P. M.

Prayer, 9:30 A. M. to 9:35 A. M.

Address of President, 9:35 A. M. to 10:00 A. M.

Intermission, 10:00 A. M. to 10:05 A. M.

To allow visitors to retire, although all are requested to remain. Action on records of 1907 convention 10:05 A. M. to 10:10 A. M.

Reports of Secretary and Treasurer, 10:10 A. M. to 10:20 A. M.

Assessment and announcement of dues; appointment of committees on Correspondence, Resolutions, Nominations, Obituaries, etc., 10:20 A. M. to 10:25 A. M.

Election of Auditing Committee, 10:25 A. M. to 10:30 A. M.

Unfinished Business, 10:30 A. M. to 10:35 A. M.

New Business, 10:35 A. M. to 10:45 A. M.

Discussion of Reports on Mechanical Stokers, 10:45 A. M. to 11:00 A. M.

Blanks for Reporting Work on Engines Undergoing Repairs 11:00 A. M. to 11:15 A. M.

Proper Width of Track on Curves to Secure Best Results with Engines of Different Lengths of Rigid Wheel Base, 11:15 A. M. to 11:30 A. M.

Discussion of Individual Paper by Mr. Lawford H. Fry on Design and Strength of Crank Axles for Balanced Compound Locomotives, 11:30 A. M. to 12:00 M.

Topical discussions:

1. Alloy steel. Results from use in machine tools and special cutters. To be opened by Mr. J. A. Carney, 12:00 M. to 12:30 P. M.

2. The smoke nuisance. What is the best method of preventing it? To be opened by Mr. H. T. Bentley.

Discussion on Report on Washing Out and Refilling Locomotive Boilers, 1:00 P. M. to 1:30 P. M.

Adjournment.

SECOND SESSION

Tuesday, June 23, 1908

9:30 A. M. to 1:30 P. M.

Discussion of Reports on:

Castellated Nuts, 9:30 A. M. to 10:00 A. M.

The Apprenticeship System, 10:00 A. M. to 11:00 A. M.

Superheating, 11:00 A. M. to 11:30 A. M.

Mallet Compounds, 11:30 A. M. to 12:00 M.

Topical discussions.

1. The proper and best method of caring for hand lamps, markers and classification of lamps on locomotives. To be opened by Mr. D. J. Redding.

2. Use of non-combustible engine house jacks of wood or other material. To be opened by Mr. R. D. Smith.

Discussion of Report on Briquetted Coal, 1:00 P. M. to 1:30 P. M.

Adjournment.

THIRD SESSION

Wednesday, June 24, 1908

9:30 A. M. to 1:30 P. M.

Discussion of Reports on:

Balanced Compounds, 9:30 A. M. to 10:00 A. M.

Sizes and Capacity of Safety Valves for Use on Locomotive Boilers, 10:00 A. M. to 10:30 A. M.

Revision of Standards, 10:30 A. M. to 10:45 A. M.

Individual Paper on The Training of Technical Men, Prof A. W. Smith, Cornell University, 10:45 A. M. to 11:30 A. M.

Discussion of Reports on:

Subjects, 11:30 A. M. to 11:45 A. M.

Correspondence, Resolutions, etc., 11:45 A. M. to 12:00 M.

Topical discussions:

1. Standardization of locomotive parts. To be opened by Mr. T. W. Demarest.

2. Advisability of using ball joint unions for air and steam pipe connections on locomotives and tenders. To be opened by Mr. C. B. Young.

Election of Officers.

Closing Exercises, 1:00 P. M. to 1:30 P. M.

Adjournment.

DEVICE FOR MEASURING OIL.

The Bowser Automatic Registering Measure is designed to record and control the flow of oil through a pipe line of any diameter, from one to six inches, where the force is supplied by gravity or pressure. Not only does it act as a meter, registering every drop of oil up to 100,000 gallons and then repeating, but it can be set to any amount from one gallon to eleven hundred and exactly the desired amount of oil will pass through the pipe.

For filling tenders of oil burning locomotives, the registering measure is located at the most convenient place on the pipe line extending from the storage tank to the filling point. To fill the tender, merely move the starting lever and the flow commences. When the tender is filled the flow can be stopped on the instant by a mere touch of the tripping lever. The measure will

BOWSER OIL METER.

then indicate the exact amount of fuel furnished the locomotive and the charges made accordingly.

For filling storage tanks direct from the tank car, the registering measure is located on the fill pipe. If it is desired to fill the storage tank with any specified quantity, say 500 gallons, the measure is set to that amount and the flow started. As soon as the 500 gallons have passed into the tank the operation of the measure is automatically stopped and the flow instantly ceases.

OPPORTUNITIES FOR FOREIGN TRADE.

The following trade opportunities are reported by the Bureaus of Manufacture at Washington, D. C., from which further particulars can be obtained:

An European firm advises one of the American consuls that it would like to secure the agency for American manufacturers of hardware, lubricating oils, etc.

One of the American consuls in a city of southern Europe reports that the secretary of an organization in his district would like to correspond with an American firm producing steel tubes, with a view to using such goods in that territory.

The Bureau of Manufactures is in receipt of a letter from an American corporation, stating that it desires to be put into communication with manufacturers of locomotives propelled by power other than steam, for use on suburban lines.

An American consul in a city of eastern Europe reports that he has been advised by a local merchant that he would like to secure the agency for American manufacturers of all kinds of leather, hardware, plumbing supplies, rubber goods, glass, and machinery.

An American consular officer in the far east reports that a company in his district expects to build a steel manufacturing works, also a cement works, and suggests that American manufacturers of the necessary machinery should correspond with the parties in question.

An American consular officer in an European city reports that a civil engineer in his district has been instructed with a project to build and equip an electric plant in South America, and would like to receive catalogues and price lists of steam boilers from American firms.

An American consul in northern Europe reports that a finishing firm in the city in which he is located desires to purchase an adding machine of the latest and most improved pattern. Catalogues, price lists, and descriptive circulars should be sent to the consul for transmission to the proper firm.

A report has been received from an American consular officer in the far east, in which he states that the local government has called for tenders for furnishing nine locomotives for use on the state railways. Copy of the specifications has also been forwarded by the consular officer in question and may be obtained from the Bureau of Manufactures.

The Bureau of Manufactures is in receipt of a letter advising that a prominent Spanish firm finds that it has a splendid opportunity to handle certain lines of American goods, and being experienced in mechanical lines would like to get the representation for Spain for some lines of light metal and woodworking machinery, for which there appears to be a good market.

A report has been received from an American consul in South Africa, in which he states that an inquiry has been received at his office from a local business man for the addresses of dealers in electric railway supplies, such as overhead wires, cars, steel and iron rails, etc. The business man in question also desires the names of contractors engaged in electrical railway construction.

An American consul in a Latin-American country reports that the cement trade of that region is almost entirely in the hands of European manufacturers, and he would be glad to receive quotations and terms from manufacturers of Portland cement in the United States for distribution among local importers. The consul is of the opinion that a good market can be developed for American cement.

The Bureau of Manufactures is in receipt of a letter from the New York office of a French firm, stating that it would like to correspond with American manufacturers of metal and woodworking machinery protected by patents, with a view of establishing an agency in France and Belgium for carrying their line and eventually manufacturing such parts of the machinery as could be done advantageously in Europe.

An American consul in an European city reports that a special request has been received at his office for the names of American manufacturers of a special article of hardware—a nail provided with a removable head in the form of a screw, sample of which has been forwarded and may be obtained from the Bureau of Manufactures. The nail is used for hanging heavy pictures, mirrors, etc., and offers with lowest quotations should be given c. i. f. certain European cities.

The Bureau of Manufactures is in receipt of a letter from a merchant in one of the large cities of Germany advising that he is about to create a large technical supply house and consulting engineering firm for central Europe. He desires to get into communication with American firms manufacturing for export all kinds of iron and steel construction, mining and metallurgical machinery, heating and ventilating apparatus, and all machinery specialties suited for the European trade.

A report has been received from an American consular officer in the West Indies, in which he states that a leading commission merchant in the city in which he is located desires to secure the representation in that region for some good American furniture manufacturer selling office furniture, especially desks. The consular officer states that there is a good demand in his district for American office furniture and manufacturers of the same will find this an excellent opportunity to enter the market.

A report has been received from an American consular officer in an European country, in which he states that certain municipalities in his district have in contemplation several industrial projects, chief among which are the installation of electric light and tramway systems. The consular officer in question is of the opinion that American manufacturers of the necessary equipment and supplies should find a ready sale for their products, and suggests that they should correspond with the officers of the municipalities referred to.

An American consul in western Europe reports that there is an opening in the city in which he is located for iron and steel boiler tubes used in steamers, as well as brass fittings. The consul forwards a price list, which may be obtained from the Bureau of Manufactures by interested firms, on which a discount of 50 to 75 per cent is allowed, and an additional discount of 2½ per cent for cash. He also forwards the name of a merchant who is interested in American goods and who will lend his assistance in establishing a market for their sale in that region.

The Bureau of Manufactures is in receipt of a communication from a German merchant who has been engaged in the hardware and lamp business in the United States for the past ten years and is about to take up a permanent residence in Germany. He states that his connections in Germany are such as would enable him to introduce a suitable line of American goods extensively and to do business on a large scale. For this reason he desires to correspond with American manufacturers of hardware specialties, tools and machinery who are interested in export trade to Germany. He is willing to buy outright, or to act as representative on a commission basis.

Consul John H. Snodgrass of Pretoria, Transvaal, reports that the Town Council of Pretoria is contemplating a change in the equipment of the street car line to electric power, and requests that American manufacturers of street cars, overhead wires and iron and steel rails furnish information as to the probable cost of an equipment of from nine to fifteen miles. The Council desires all the information that may be obtained from American manufacturers as to cost per mile for track and overhead wire, and also cost per car for ten or more. The type of car preferred is the ordinary light car that is used in the smaller cities of America. Letters and catalogues may be addressed to Dr. S. R. Savage, mayor of Pretoria, or to the American Consul, P. O. Box 952, Pretoria, Transvaal, South Africa.

A STEEL TRUST IN RUSSIA.

The London Commercial Intelligence states: From reports emanating from authoritative sources in Paris and Brussels, there appears to be some prospect of a combination of the leading Russian steel works, including not only the three principal establishments, but most of the works of any importance, which together would control nearly 80 per cent of the production of iron and steel in South Russia. The capital of the "Usines Métallurgiques de Russie," which it is proposed to form upon obtaining the approval of the Russian Government, is put at from $78,000,000 to $97,000,000. The formation of this trust would be an event of some importance to foreign manufacturers, as one of its objects would be to develop markets abroad, where these Russian works have proved in the course of the past year or two they are quite able to compete with other European works.

EXHIBITORS AT THE CHICAGO CONVENTION.

The following is the list of those who made exhibits at the Lexington Hotel for the International Railway General Foremen's Association convention:

American Steel Foundries Co., St. Louis.
S. F. Bowser & Co., Ft. Wayne, Ind.
A. C. Clark Co., Chicago.
Chicago Railway Equipment Co., Chicago.
Detroit Lubricator Co., Detroit.
Dearborn Drug & Chemical Co., Chicago.
Firth-Sterling Steel Co., C. J. Jackman, agent, Chicago.
Farlow Draft Gear Co., Baltimore and Chicago.
W. H. Foster, New York.
Garlock Packing Co., Chicago.
Gold Car Lighting & Heating Co. of New York.
Goldschmidt Thermit Co., New York.
Hunt-Spiller Mfg. Co., Boston.
Jenkins Bros., New York.
Landis Tool Co., Waynesboro, Pa.
National Patent Holding Co.
Nathan Mfg. Co., Chicago-New York.
Safety Car Heating & Lighting Co., Chicago and New York.
Scullin-Gallagher Iron & Steel Co., St. Louis.
Storrs Mica Co., Owego, N. Y.
Zephon Chemical Compound Co., Chicago.

Owing to the late date of the month, more particulars could not be obtained for the June issue in regard to business of the convention and the social features. Papers and report will appear in the July number of the RAILWAY JOURNAL.

AMONG THE SUPPLY FIRMS.

The New York office of the Railway Materials Co. has been moved to the Singer building.

Mr. Wm. T. Richards of Colorado City, Colo., has patented a quick action triple valve for air brakes.

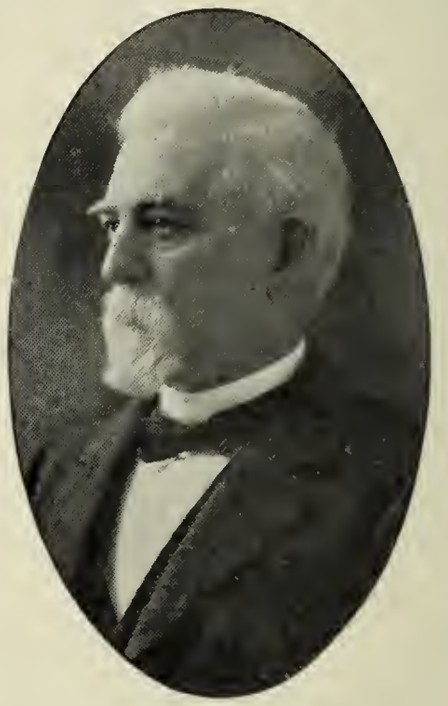
W. R. Toppan has resigned as general manager of the Kennicott Water Softener Co. of Chicago.

Jenkins Bros. of New York have moved their Chicago office from 31 Canal street to 226 Lake street.

Mr. Willard K. Bush has been appointed in charge of the new Detroit office of the H. W. Johns-Manville Co.

The Cincinnati Car Co. has contracts for building four interurban cars for the Pittsburg & Butler Traction Co.

The Ralston Steel Car Co. has opened an office in the Fisher building, Chicago, in charge of Mr. John A. Connors.



LATE DAVID O. SETTLEMIRE.

David Orr Settlemire, president of the Mt. Vernon Car Manufacturing Co. of Mt. Vernon, Ill., died on May 8. He was a native of Cape Girardeau county, Mo., and was born on March 24, 1827. He has been in manufacturing business nearly all his life and was one of the most prominent business men in southern Illinois.

The Parsons Locomotive Engineering Co., Old Colony building, Chicago, has issued its first booklet in which it sets forth the merits of the Parsons system of combustion.

The Westinghouse Machine Co. has the contract for equipping a large Brooklyn power station with twenty-four stokers suited to 600-horsepower boilers of the B. & W. water tube type.

"Money Well Spent" is the title of a leaflet sent out recently by the Flannery Bolt Co. of Pittsburg, on which is given reasons why the Tate flexible staybolt should be applied to locomotives now.

The RAILWAY JOURNAL will appreciate it if all manufacturing firms will favor us with new catalogues when issued, also keep us posted on changes of officers, representatives and new offices.

Mr. G. D. Haskell of 95 Dearborn street, Chicago, has been displaying at the Rock Island station in that city on C., R. I. & P. box car No. 326, a roller bearing for car axles which he has recently designed.

Messrs. C. A. Williams, Lloyd P. Steere and George S. Steere have incorporated the Consolidated Supply Co. Headquarters are in the Manhattan building, Chicago. They will handle railway and mill supplies.

Williams, White & Co. of Moline, Ill., has issued an illustrated catalogue showing their line of shearing, punching and forging tools.

The Glacier Metal Co. of Richmond, Va., has plans for erecting a factory at Manchester, Va., where the company will turn out babbitt metal.

Wm. A. Pitcher, eastern railroad representative of the S. F. Bowser & Co., Ft. Wayne, Ind., was one of the twelve who lost their lives in the Aveline Hotel at Ft. Wayne, Ind., on May 3. Mr. Pitcher was a popular man in railway and manufacturing circles.

The Goldschmidt Thermit Company announces the establishment of a branch office and works at 103 Richmond street, West, Toronto, Canada. The new branch was opened for business May 1 and is under the management of Mr. E. C. Rutherford of Toronto. A complete stock of thermit and appliances will at all times be carried at Toronto, and the branch organization will be in a position to execute promptly the welding of heavy steel sections, such as stern posts of steamships, crankshafts, etc., as well as trolley rails in paved streets, electric motor cases and other broken steel sections. A fully equipped repair shop will be in operation for the repair of steel castings up to one thousand pounds in weight.

GEORGE M. WILSON.

The new general supervisor of the boiler shops of the American Locomotive Co., Mr. G. M. Wilson, is an old-time craftsman who is an honor to his honored profession. After serving his apprenticeship in the shops of the D. & H. at Troy, N. Y., Mr. Wilson worked at his trade there till 1884, when he drifted west and worked at Minneapolis, then went to Winnipeg. His experiences in the Northwest are interesting and more or less thrilling. Returning to Minnesota he took service with the Northern Pacific and in 1889 was given the position of master boilermaker of that road at Glendive, Mont. His

GEORGE M. WILSON.

excellent service gave him promotions at different shops till 1904, when he resigned as master boilermaker in charge of marine work to become general boiler inspector of the American Locomotive shops at Schenectady, N. Y., which position he has filled till his recent promotion which gives him the general supervision of the company's numerous shops. His headquarters are at Schenectady, N. Y. His promotions speak for his ability.

MECHANICAL NOTES.

The D., L. & W. is in the market for 300 steel hopper cars.

The New York, Ontario & Western has ordered five locomotives.

The International & Great Northern will soon order 1,250 freight cars.

The Minneapolis & St. Louis has ordered two combination baggage and mail cars.

The Wabash is to build shops, yards, etc., at Brewster, O., on the cut-off of the W. & L. E.

L. M. Seaweard of Ontario, Ore., has invented a new method of fastening flues in the boiler.

The Baldwin Locomotive Works have a contract for building six mogul engines for the Iowa Central.

The Oklahoma Central's shops and roundhouse at Purcell, Okla., were partially destroyed by fire last month.

The American Locomotive Co. has a contract from the Eastern Railway of France for two Mallet type engines.

The Panama Canal Commission of Washington, D. C., announces that sealed bids will be received till June 2 for 300 box cars.

A Ft. Scott (Kan.) paper states that the Missouri Pacific car shops at that point are to be closed and the work let out by contract.

The Cananea, Yaqui River & Pacific has completed a roundhouse at Navajoa, Mex., and is working on new shop buildings at that point.

The Union Pacific has plans for extensive shop improvements at Sharon Springs, Kan. The plans call for an 8-stall roundhouse, 41,000 feet of side tracks, coal chutes, water tank and other terminal improvements. Work is to begin early next month.

The Santa Fe has plans for extensive shop improvements at Wellington, Kan., which includes an addition of 8 stalls to roundhouse, a new power house 38 by 96 feet, machine shop building 40 by 90 feet, smith shop 20 by 40 feet, car shop 50 by 90 feet, etc.

The main shops of the Canadian Pacific at Montreal are building the following equipment: Forty-eight flat cars, four refrigerator cars exclusively for freight train service, one refrigerator car for passenger train service, eighteen vans, thirteen stock cars, one baggage car, one mail and express car, 127 box cars.

Consul George H. Scidmore reports that during the year 1907 a briquette company at Nagasaki, Japan, manufactured over 35,000 tons of briquettes, nearly all of which were delivered to the Japanese navy. The company's output during the current year is expected to reach 50,000 tons. This fuel is now sold at the factory at 17 to 18 yen ($8.47 to $8.96) per ton of 2,240 pounds.

The Isthmian Canal Commission at Washington, D. C., will receive bids until June 2 for furnishing turbine pump, direct connected to motor; duplex water pump, power hammer, 200,000 tieplates, sixty-two frogs of various sizes, fifty sets split switches, 100 switchstands, 200 cast-steel rail clamps, 16,000 pounds babbitt metal, pipe wrenches, paper roofing, lantern globes, etc.

BOILER CONSTRUCTION.

All boilermakers who wish to get the best work on locomotive boiler construction can secure through the RAILWAY JOURNAL, a copy of Frank B. Kleinhans' new book on "Boiler Construction," a book of over 430 pages, handsomely illustrated and cloth-bound. The book contains 334 clear cuts and five pages of large plates, illustrating different forms of locomotive boilers. There are 75 pages devoted to laying out and about 50 pages devoted to tables, rules and other valuable data. We have arranged to secure this book for our readers at cost—$3.00—which will be sent postage paid. It is the most complete and up-to-date work of its kind we have been able to secure for our readers, and we think it is about what every aspiring boilermaker needs. A boilermaker of forty years' experience writes: "I would not take $10 for my copy if I could not replace it." We also take orders for the

WALSCHAERT LOCOMOTIVE VALVE GEAR.

This valuable book of 150 pages, finely illustrated, should be in the hands of every railway engineer, fireman and mechanic as well as foreman. It is devoted exclusively to the above system of valve motion. The book contains information that is put forth so simply that anyone can easily understand it. Its illustrations and diagrams alone are worth more than the price, $1.50.

AUTOMATIC CRANK-PIN TRUING MACHINE.

One of the most expensive and time consuming operations in the railroad shop is the truing of locomotive crank pins. Heretofore no really satisfactory machine has been designed to handle this branch of locomotive repair work, and as a result the truing of crank pins has usually been done by a chipping and filing process, which procedure is not only slow and expensive, but seldom results in a perfectly round pin. There are many railroad shop men who resort to the expense of removing the old crank pin and replacing it with a new one, rather than take the time and cost, burden of filing, and chipping the old pin to shape.

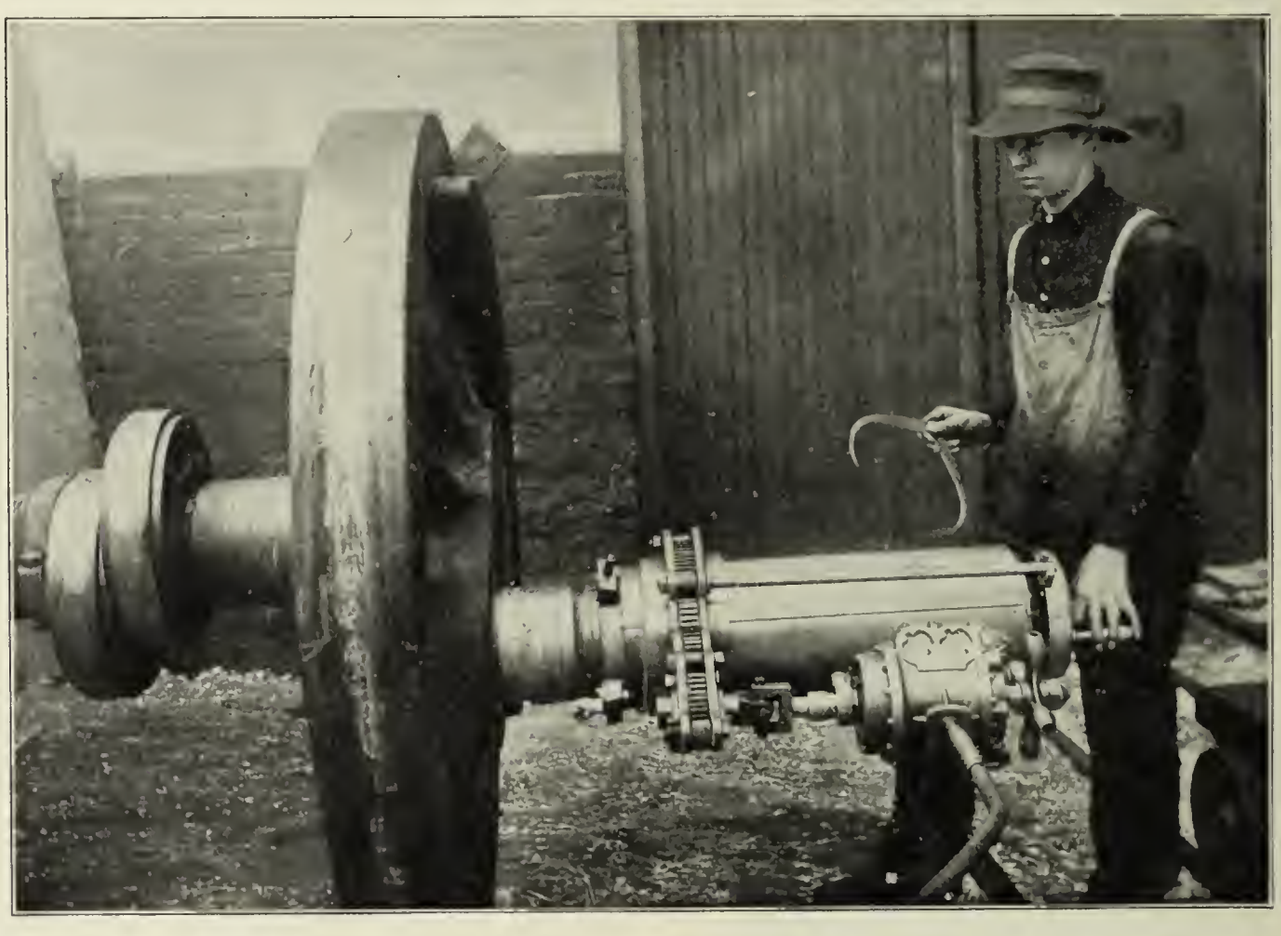
Machines which are bolted to the side of the wheel or hub will only square the pin with those parts, and as they are seldom true with the wheel (on account of the distortion due to pressing on the wheel and shrinking on the tire), the pin cannot be trued in perfect alignment. The Ryerson Crank Pin Truing Machine takes its bearing directly on the pin itself, and as the crank pin hole is bored after all other work on the wheel is accomplished, the pin must necessarily be in absolute alignment with the axle. This machine was designed by a railroad mechanic after several years study of the requirements and a careful investigation of the methods used in various shops throughout the country. The features which made other machines objectionable were finally overcome, and from the results obtained in the shops now using this machine.

It is simple in construction and consists of only four parts, no one of which is too heavy to be easily handled by a man. The accompanying illustration shows the machine as connected to the crank pin and ready for operation. In operating, the barrel of the machine is first secured firmly to the gudgeon screw at the end of the crank pin by means of two handles. These are then removed, and the sliding sleeve is placed on the barrel. Attached to this sleeve there are lugs containing the necessary tools for roughing, finishing and filletting the cank pin. These tools are of high speed tool steel. The gearing wheels and casing are then slipped over the two feather keys.

The forward, or feed motion of the sleeve is accomplished by means of a hand wheel which is so designed that the feed may be either automatic or done by hand. The arrangement of the feed is such that it is unnecessary to stop the machine in order to engage or disengage the gearing. The sleeve is caused to revolve around the crank pin by means of an air drill or motor, which is the only power necessary in operating.

This machine can be used in any roundhouse without removing the wheels from the engine, thus prolonging the life of the rods, as well as the brasses. The breaking of many rods has been traced directly to the imperfect condition of the main crank pin, and it has been demonstrated that if the main pins are kept in good condition, those in the front and back wheels will require little or no attention, and the number of broken rods will be greatly reduced.

The machine complete weighs 350 pounds, exclusive of the air motor. Any standard air drill or motor can be used for this purpose. This company will furnish these machines subject to thirty days trial.



AUTOMATIC CRANK-PIN TRUING MACHINE

CONSTRUCTION AND IMPROVEMENTS.

The Western Pacific has completed its tracks as far east in California as Sacramento.

The L. & N. has completed plans for an 18-mile extension between Mt. Pleasant and Mayfield, Tenn.

The St. Joseph & Grand Island has completed a branch line between Stout and Highland, Kan., 7 miles.

The Wheeling & Lake Erie (Wabash) has completed a 22-mile cut-off between Orrville and Bolivar, O.

R. D. Yoakum is president of the Ft. Smith Development Co., of Ft. Smith, Ark., which proposes to build a belt line at that point.

The citizens of Shawnee, Okla., are trying to raise a bonus of $75,000 for the construction of a line between that point and Muskogee, Okla.

The Waterloo, Cedar Falls & Northern has negotiated a loan to make extensive construction work soon, including an extension to Waterloo, Ia.

W. W. Larson and others of Swainsboro, Ga., are promoting the Cotton Belt, which proposes to extend from Louisville, Ga., to Shell Bluff Landing.

The United Railways of Yucatan have completed arrangements for a loan of $5,000,000, and it is understood that extensive extensions are to be made soon.

An official of the Orange & Northwestern at Orange, Tex., states that that line is to build from Newton to Hemphill, Tex., about 31 miles. Work is to begin this season.

General Julio M. Cervantes of Mexico City has obtained a concession to build a road between San Mateo and Tiletta, Mex., which, with branches, will be about 90 miles long.

The Southern Pacific officers have incorporated the Goose Lake & Southern, which proposes to build from Goose Lake to Anderson, Calif., about 225 miles, with an extensive branch.

The National Lines of Mexico is contemplating making extensive track improvements between Laredo, Tex., and San Luis Potosi, Mex. The changes will eliminate several heavy grades.

W. J. Hogue, of Dallas, Tex., is president of the Union Central, which proposes to build between Dallas & New Orleans, 500 miles. It is stated that contract has been let for 20 miles of the proposed road.

The South Dakota Central has just completed a 20-mile extension between Hayti and Watertown, S. D., 20 miles, and is ready for operation. The road is now about 65 miles long. P. F. Sherman of Sioux Falls, S. D., is president.

Mr. W. T. McKell of Aberdeen, Miss., is chief engineer of the Aberdeen & Tombigbee Valley, which has just contracted to build from Okalona, Miss., to Peckinsville, Ala., 65 miles. The route is to follow largely the old grade of the Memphis & Selma, abandoned some years ago.

Vice-President J. M. Neeland of the Pan-American Railway reports that the road is now about completed between San Geronimo, Mex., and Ayutla, on the Guatemala frontier. Construction through Central America is to be then suspended until after the rainy season is over.

Mr. J. W. Mossop, vice-president of the St. Paul, Minneapolis & Seattle Electric Railroad Company, informs the RAILWAY JOURNAL that "arrangements are being made for the prompt delivery of 90-pound steel rails and active work will be pushed in all directions as rapidly as possible." Headquarters are in St. Paul, Minn.

A press report from Spokane, Wash., states that Patrick Welch of Spokane, a member of Foley, Welch & Stewart, railway constructors, who have a contract to build 160 miles of main and branch lines for the Grand Trunk Pacific Company in British Columbia from Prince Rupert eastward, and 125 miles of main line west of Edmonton, Alberta, announces that from 7,000 to 8,000 white men can find immediate employment. The contracts in British Columbia involve $10,000,000, and it is expected to turn the line over to the company in eighteen months.

A dispatch from Austin, Tex., says that the Kansas City, Mexico & Orient will soon let the contract for the construction of a bridge across the Rio Grande at the proposed Mexico-United States crossing near Presidio del Norte. The extension of the Orient north from Chihuahua is making good progress and it is stated that it will be completed to the Rio Grande by some time next fall. It is now being built down the valley of the Conchos river, which is very fertile and susceptible of high agricultural development. The road lacks more than 300 miles of reaching the Rio Grande on the Texas side, but it is announced that the gap of 90 miles between Alpine, on the Southern Pacific, and the Rio Grande crossing will be built within the next twelve months.

A recent issue of the Mexican Herald said: "About June 1, J. M. Neeland will take up with the Mexican government a formal application for concessions for building the Mexican Pacific Railroad, projected between Jalisco, Chiapas, on the Pacific and Campeche on the Atlantic. Thirteen hundred kilometers of construction will be required to make connection between the Pan-American road in Chiapas and the United Railways of Yucatan at Campeche, which this plan contemplates. Beyond announcing that he is now financially ready to take up his new railroad project, the builder and vice-president of the Pan-American road stated that he is not ready to make public his plans for the new undertaking. Concessions covering portions of this line have already been secured from the state government of Chiapas."

THE FOREMAN'S FILOSOFY.

The way of the pessimist is gloomy; his lamp of intelligence needs trimming.

This month the campaign will be started to "save the country" once more.

If you wish to enjoy solitude in your sphere, just start out to be a sincere reformer.

No one can shout "thief" quicker or louder than the man who has the wrong goods on him.

When a man asks you to help him get revenge, just tell him to get some one else to do his "dirty work."

The man who is in love with his work, though humble it may be, is filling an honored mission and is worthy of greater reward.

Promotion was never found on the face of a clock.

Distrust the man who is always watching for the misfortunes of others for his own gains; he will try to turn the tide against you if he can.

The easiest way to deceive yourself is to try to believe everything you wish might be so.

NEW HOME OF RAILWAY SUPPLY FIRMS.

Since the new Hudson Tunnel Building in New York City has been completed many of the offices have been taken by railway supply firms, which makes the building appear like the home of railway manufactured products.

Among the firms that have just located in that building are the following: Western Wheeled Scraper Co., Wendell & MacDuffie, Wellman-Seaver-Morgan Co., Watson-Stillman Co., Ajax Mfg. Co., Adams & Westlake Co., American Brake Shoe & Foundry Co., American Bridge Co., American Gas & Electric Co., American Locomotive Co., American Steel Foundries, Atlas Engine Works, Ball & Wood Co., Boekelman Construction Co., Carbon Steel Co., Cleveland Varnish Co., Crocker-Wheeler Co., Charles Engelhard, Fairbanks, Morse & Co., Fort Wayne Electric Works, Alfred Fowle, Jr., General Electric Co., Godwin Construction Co., Jacobs & Davies, Keystone Seal & Press Co., H. G. Kotten & Co., Lambert Hoisting Engine Co., J. J. McCabe, Monarch Machinery Co., Monarch Ventilator Co., Nelson Valve Co., Ohio Brass Co., Railroad Supply Co., Railway Steel Spring Co., Robins Conveying Belt Co., Rogers, Brown & Co., Tuohy Bros. Co., Abendroth & Root Mfg. Co., American Diamond Blast Co., American Machinery & Export Co., American Mason Safety Thread Co., American Spiral Pipe Works, American Steam Users Economic Co., Brown Hoisting Machinery Co., W. H. Bundy Recording Co., H. W. Caldwell & Son Co., Ralph B. Carter Co., H. M. & H. F. Chase, Chicago Pneumatic Tool Co., Composite Board Co., Connersville Blower Co., Consolidated Railway & Light Co., Crown Castings Co., Cutler-Hammer Mfg. Co., Davies & Thomas Co., Dayton Hydraulic Machinery Co., Electric Controller & Supply Co., Electric Service Supplies Co., Emerson Electric Mfg. Co., Exeter Machine Works, Walter H. Foster Co., General Contracting & Engineering Co., Harper Machinery Co., Harris Automatic Press Co., Independent Engineering Co., Interstate Engineering Co., David Lupton's Sons Co., Machinery Club of New York, McIntosh, Seymour & Co., Mesta Machine Co., Morse Chain Co., Thornton N. Motley & Co., Oliver Machinery Co., Ephraim S. Pease, Providence Engineering Works, Riter-Conley Mfg. Co., Rust Boiler Co., Schoen Steel Wheel Co., Schutte & Koerting Co., Security Register & Mfg. Co., Sherwin-Williams Co., H. B. Smith Machine Co., Star Engineering Co., Tyler Tube & Pipe Co., Wagner Electrical Mfg. Co.

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AIR BRAKES:
Westinghouse Air Brake Co. . . . Pittsburgh

AIR COMPRESSORS:
Fairbanks Morse & Co. . . . Chicago

ANGLE BARS:
Sellers Mfg. Co. . . . Chicago

BABBITT METAL:
Spencer Otis Co. . . . Chicago
C. M. Hewitt. . . . Chicago

BALLAST UNLOADERS:
Fairbanks, Morse & Co. . . . Chicago
Lidgerwood Mfg Co. . . . New York

BELTING:
G. S. Wood . . . Chicago

BLOCK SIGNALS:
Federal Railway Signal Co. . . . 60 Wall St., New York
Railroad Supply Co. . . . Bedford Bldg., Chicago

BOILER TOOLS AND MACHINERY:
J. T. Ryerson & Sons . . . Chicago

BOILER TUBES:
Spencer Otis & Co. . . . Chicago
J. T. Ryerson & Sons . . . Chicago

BOLSTERS, STEEL:
American Steel Foundries . . . Chicago
Commonwealth Steel Co. . . . St. Louis, Mo.
Standard Steel Car Co . . . Pittsburgh

BOLTS AND NUTS:
Continental Bolt & Iron Works . . . Chicago
John G. Miller . . . Chicago

BOOTS—RUBBER:
G. S. Wood . . . Chicago

BRAKE BEAMS:
American Steel Foundries . . . Chicago
Standard Steel Car Co. . . . Pittsburgh

BRAKE JAWS:
Spencer Otis & Co. . . . Chicago

BRAKE SHOES:
American Brake Shoe & Foundry Co. . . . New York
McGuire-Cummings Mfg. Co . . . Chicago

BRIDGES:
Chicago Bridge & Iron Works . . . Chicago

BRUSHES—PAINT:
Hooker, H. M., & Co. . . . Chicago

BUMPING POSTS:
Mechanical Manufacturing Co. . . . Chicago
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BURNERS:
Adams & Westlake Co. . . . Chicago

CABLEWAYS:
Lidgerwood Mfg. Co. . . . New York

CAR AXLES:
McGuire-Cummings Mfg. Co. . . . Chicago
Standard Forgings Co. . . . Chicago

CAR DOORS:
Chicago Grain Door Co. . . . Chicago
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McGuire-Cummings Mfg. Co . . . Chicago
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Safety Car Heating & Lighting Co. . . . New York

CAR LIGHTING:
Adams & Westlake Co. . . . Chicago
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CAR LUMBER:
Nourse-Taylor Lumber Co. . . . Chicago, Ill.
Dunbar Mill & Lumber Co . . . Cairo, Ill.

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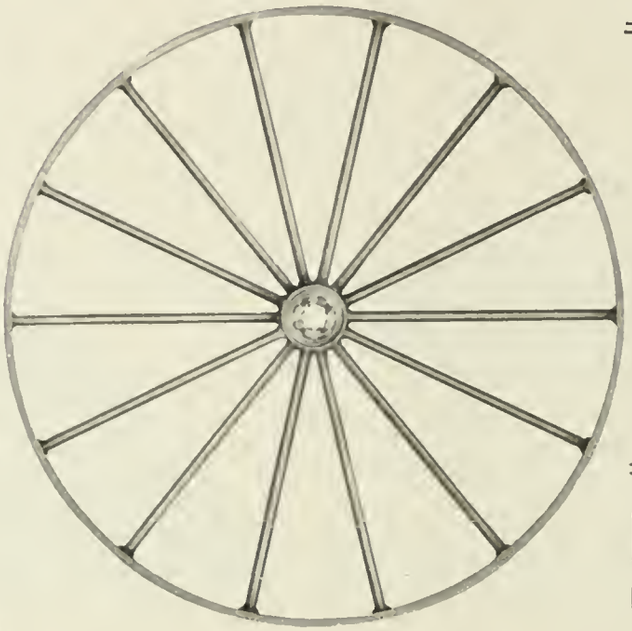

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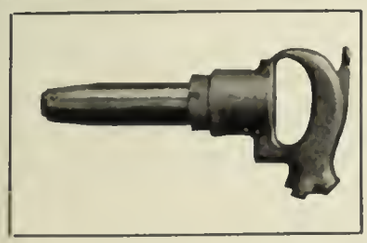

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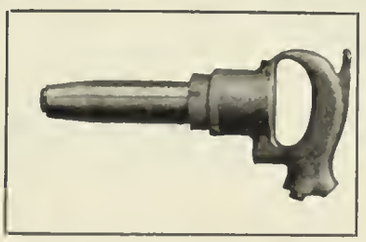

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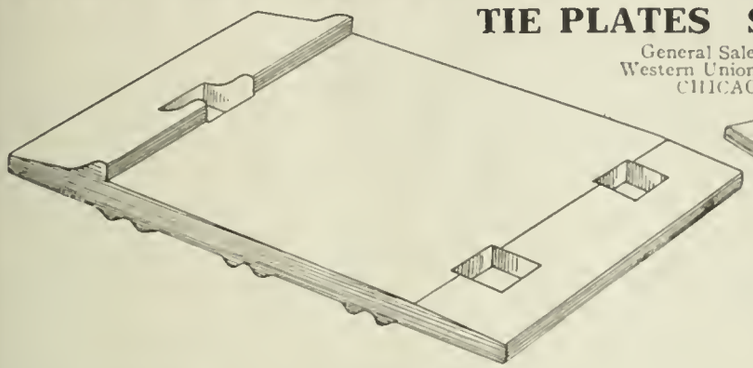

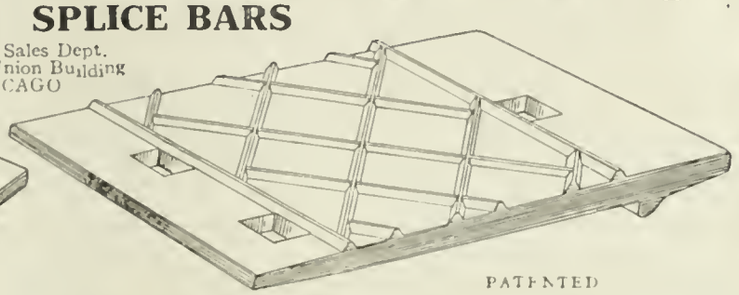

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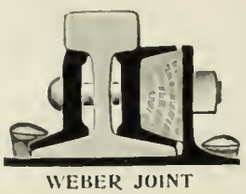
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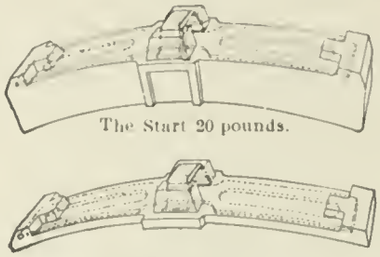

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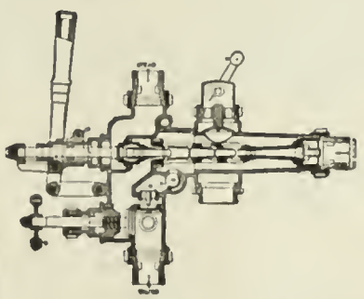

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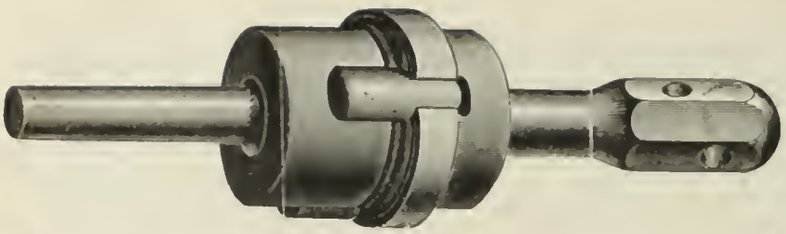

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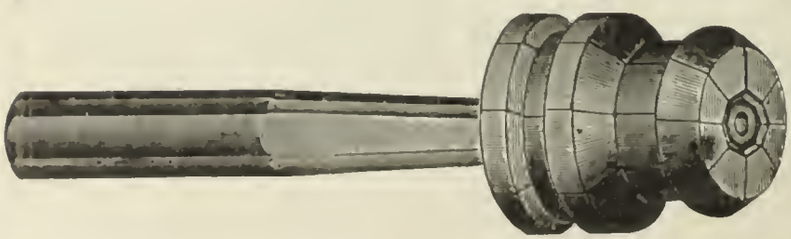

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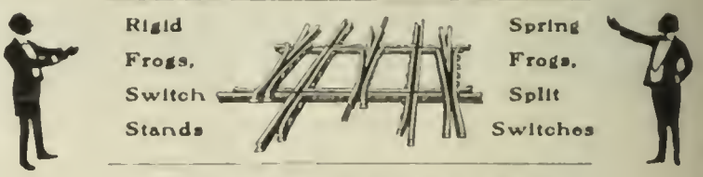

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Address all communications to
RAILWAY JOURNAL, 506 Royal Insurance Bldg., Chicago, Ill.
'Phone, Harrison 1006.

Entered as Second-Class Matter October 22, 1906, at the Post Office at Chicago, Illinois, under Act of March 3, 1879.

W. E. FAITHORN . . . . . Business Manager
E. C. COOK . . . . . Editor

SUBSCRIPTION PRICE, One Dollar per Year, Ten Cents per Copy

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ADVERSE SENTIMENT WANING.

It is gratifying to note that at the beginning of a national campaign, the sentiment against railways and other corporations is becoming less hostile and more friendly. No doubt this is because the thinking public has begun to realize the mistakes made in the past two or three years by being too hasty or too radical in bringing about what was supposed to be reforms. If the wave of reaction which has set in will continue to grow stronger, there will be no more talk of "lack of confidence" in the business of the country. A railway executive has forcefully expressed himself along this line, as follows: "We can now see that the public conscience has become quickened in regard to the legislative treatment which railroad investments have received and a strong reaction is taking place. The antagonism of the people not long ago active and aggressive, is making way for sympathetic cordiality and co-operation. As soon as this new sentiment becomes so crystallized as to indicate its permanency, all of our gloom will pass away like mist before the rising sun and the arteries of commerce will throb again with the life blood of trade." While all this is true, it is feared that as soon as the campaign gets warmed up, as it were, and the spell-binders get abroad in the land, that adverse sentiment will again set in. It is unfortunate that there is no law to keep this element out of the political game.

TWO MEN—A PEN PICTURE.

Here is a true story taken from the Kansas Farmer, which we believe should appeal to every young man starting out in life, or even along in years. The moral is applicable to young men in all fields of activity, the railroad, the factory, the farm and the forum. Read it. It is for you. Not all men can become vice-presidents of a railroad, but all healthy men are capable of doing diligently the works of today and accept whatever blessing is in store for him as a reward for his having done his best. It says:

Two individuals stood on the station platform awaiting the incoming fast train. Physically they appeared to be equals. Their height was almost six feet, weight 190. Each had two hands, two feet, two eyes, two ears, a nose and a mouth. Each had good digestion and abundance of strength.

The one stepped aside from the crowd and as the train pulled in kept an eye on the train crew and disappeared on the "blind baggage."

The other returned the hearty handclasps of railroad officials, and as he mounted the steps of his special palace car, bowed recognition to the mayor of the city just then passing in his carriage.

The one would be routed out at the next station, but might succeed in getting on the bumpers.

The other would enter a luxuriously upholstered suite of apartments, finished in polished mahogany. There would be sitting-room, bed-room, bath, and kitchen, with ample service for the comfort and well-being of this man whose car would be cheerfully attached to any train and his convenience promoted in every way possible to the employes of the great railroad.

Why the difference?

These men both recently quit the service of one of the great railroad systems of the country. The one hopes soon to enter the service of another at $1.50 per day. The other has passed from the position of general manager of one company at $18,000 per year to the more important position of vice-president of the other at a larger salary.

These men had been boys together. They had lived on adjoining farms. They had gone to the same school. Their

parents were not rich. When the grasshoppers, in 1874, devastated the frontier on which these families lived, the one family applied for aid, bemoaned the hard luck, and wanted to find some easier place to make a living.

The other family sent the boy to town to gather up the washing of the bachelors. He took it home, helped his mother with the work, returned it to the owners, collected the pay, bought groceries and returned rejoicing. The section foreman on the railroad wanted a boy to carry drinking water to his men. This other boy was happy at getting the job. A freight rustler was wanted at the little station. This other boy was again in luck and got the place. He did his work well, learned the use of the telegraph instruments, the system of accounts, and how to do the business of a station. There was a vacancy at a near-by station and this other boy got the place. He later obtained work in the train service. By close attention he earned promotion and without any "pull" of any kind except his own efficiency he advanced to higher positions. As years passed this other boy appeared in the positions of roadmaster, division superintendent, general superintendent, general manager, and finally greatly to the regret of his employers, but with the heartiest expressions of their good will, he transferred to the position of vice-president of the rival system. Knowing ones say that the next change will place this other boy of 1874, this other man who stood on the station platform, in the presidency of the great system.

The question put by the Nazarine when a mother had asked preferment for her sons: "Are ye able to drink of the cup that I shall drink of, and to be baptised with the baptism that I am baptised with?" is applicable to the case of these two boys and these two men. "Are ye able to do diligently the works of today?" Upon the character of the truthful answer to this question depended the difference in the plights of the two men who stood upon the same station platform, not so very long ago, in Kansas.

ATLANTA, BIRMINGHAM & ATLANTIC RAILROAD.

On June 18, the Atlanta, Birmingham & Atlantic inaugurated its train service into Atlanta, Ga., and the opening of that division to the new point was an occasion for considerable public demonstration at Atlanta on that date. This is comparatively a new growing system in the south. In regards to its history, growth and plans, President H. M. Atkinson of Atlanta, writes the RAILWAY JOURNAL as follows:

The Atlanta, Birmingham and Atlantic Railroad Company acquired the Atlantic and Birmingham Railway Company on April 12, 1906, and the two roads have since been operated as one organization in the name of the Atlanta, Birmingham and Atlantic Railroad Company.

The main lines of the railroad company are as follows:

Brunswick to Talladega	380	miles
Manchester (or Warm Springs) to Atlanta	78	"
Fitzgerald to Thomasville	80	"
Waycross to Sessoms	26	"
Pyriton, Ala., to Ashland	7	"
Present total main line completed and in operation	571	"
Main line under construction, Talladega to Birmingham, Ala.	77.5	"
Total main line upon completion	648.5	"

Track laying has been completed to a point twenty miles west of Talladega, and is progressing at a rate which we hope will enable us to operate trains into Birmingham by September 1st, 1908.

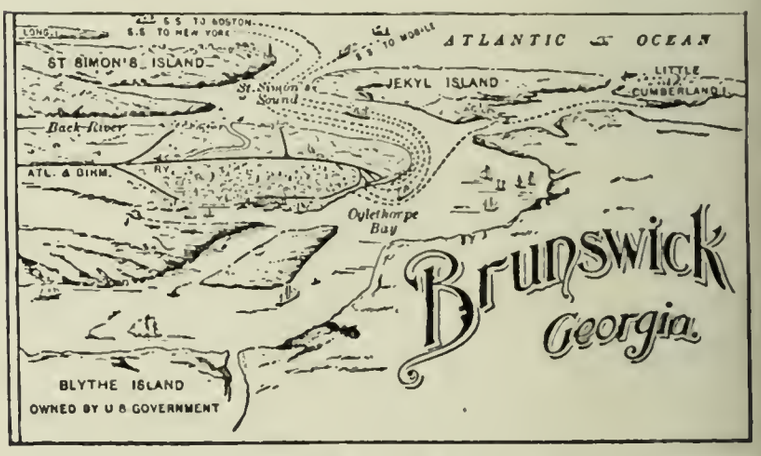
The road has been constructed in accordance with the highest standards, with 80-lb. rail. The maximum curvature is six degrees, and the maximum grade 1 per cent. Passing tracks capable of holding 50-car trains are being put in every four miles. Complete shops have been built for the railroad company at Fitzgerald, Georgia.

After five years' continuous work, the acquisition of our Atlanta terminals has been completed and the property conveyed to the Georgia Terminal Company. The terminal property comprises about two hundred acres, and is sufficient for all purposes, yards, shops, and city freight and passenger stations, and furnishes connections with all roads entering Atlanta. It also comprises a large amount of property which is well suited for the location of industries. The entire capital stock of the Georgia Terminal Company, $1,500,000, is owned by the Atlanta, Birmingham and Atlantic Railroad Company and is subject to the lien of its first mortgage bonds. The terminal development has been under way for a year and a half and is practically completed, and the property is now being operated as the Atlanta terminal of the Atlanta, Birmingham and Atlantic Railroad.

A contract has been entered into whereby this company will use for passenger purposes, jointly with the Western and Atlantic, Seaboard Air Line, Louisville and Nashville and Georgia Railroads, the "Old" or Union Depot in Atlanta. This passenger station occupies the most central location, being the point around which the city has been built.

Complete and comprehensive terminals have been acquired in the city of Birmingham and the Birmingham district and the property conveyed to the Alabama Terminal Railroad Company. These terminals comprise local freight and passenger terminals in the city of Birmingham, ample property for yards and shops, in all 250 acres; and also a belt railroad covering the district and running completely through the Pratt coal fields, and connecting with all roads entering Birmingham. These terminal arrangements at Birmingham will reach the traffic of the district and are capable of handling a very large business. The entire capital stock of the Alabama Terminal Railroad Company, $3,000,000, is owned by the Atlanta, Birmingham and Atlantic Railroad Company, and is subject to the lien of its first mortgage bonds.

By contract this company will use for passenger purposes, in common with the Louisville and Nashville Railroad, the passenger station of the Louisville and Nashville Railroad at Birmingham. This station occupies the most central location in Birmingham.



SEAPORT OF ATLANTA, BIRMINGHAM & ATLANTIC RAILROAD.

Brunswick, the Atlantic ocean terminal of the railroad, has a fine harbor. The Atlanta, Birmingham and Atlantic Railroad Company is in strong position for handling business through its ownership of a belt railroad and terminal property, ample for yards, deep water terminals, and city freight and passenger stations. The water terminal has over half a mile of deep water frontage and comprises about 100 acres of land. The construction of two large piers 700 feet long and 400 feet long respectively, coal pier and lighter, a large lumber basin or slip 1,600 feet long, also four large warehouses and power plant is completed. All of this work is of the most permanent character, concrete piles having been used throughout.

Interests friendly to the railroad company organized the Brunswick Steamship Company during the early part of July, 1906. Contracts for the construction of four freight steamers of 5,000 tons displacement were let in the spring of 1906. These steamers, named the "Satilla," "Ogeechee," "Ossabaw" and "Ocmulgee" were completed during the year 1907 and are now in regular service between New York and Brunswick. So much business was offered these steamers during the first weeks after the service was begun that a fifth steamer of the same

type, called the "Altamaha," was built and is now in service. These five ships are running on regular schedule between New York and Brunswick, giving two sailings a week from each port. This enables the making of continuous water and rail rates from the east to the southeast, and, through connections, to the west, and vice versa. The Brunswick Steamship Company has leased for twenty years from the City of New York piers numbers 14 and 15 at the foot of Fulton street, Manhattan, one of the best steamship terminals on the entire water front of New York. Operations of the Brunswick Steamship Company are estimated as follows:

Gross earnings	$1,040,000
Total expenses per annum, including interest and depreciation	835,880
Net earnings	$ 204,120

The Atlanta, Birmingham and Atlantic Railroad Company, starting at Brunswick, runs in a northwesterly direction across the States of Georgia and Alabama through a territory that is rapidly developing. The road has been so located between existing lines that it has a belt of territory which may be fairly called its own so far as local business in and out is concerned. its connections, not only at Birmingham and Atlanta, but at almost every point on its lines, and which enable the road, through its connections, to reach all the South Atlantic ports as well as Brunswick. There is scarcely a product of the South that is not reached by the road. The States of Georgia and Alabama are perhaps the two most progressive Southern States, and the road will be in position to take full advantage of the rapid development that is now going on.

The prospects of Atlanta and Birmingham are perhaps the brightest of any two Southern cities. These two Southern cities will be connected with the ocean and connected with each other, and all the intermediate territory will be served to and from tide water. The road reaches a large number of the best towns in these two states and those which are growing most rapidly. Particular attention has been paid in all these towns to terminal facilities.

The basic plan with regard to the road throughout has been the construction of a continuous line of railway from Brunswick as the Atlantic Ocean terminal (through good local territory needing development, traversing the States of Georgia and Alabama, with low grades, easy curvature and short distances) to Birmingham and Atlanta, and through connections at those points to the west.

MAP OF ATLANTA, BIRMINGHAM & ATLANTIC RAILROAD

This local territory tributary to the road widens steadily as the road goes west to Birmingham. From Brunswick to Montezuma the character of the country steadily improves. Today it is fairly equally divided between timbered lands and cultivated lands. At LaGrange the road penetrates one of the richest sections of the State of Georgia. Continuing northwestwardly from LaGrange, the road passes through good farming country to the Alabama line, and thence through the towns of Roanoke, Wadley, Lineville and Talladega, all in Alabama, to Birmingham. A large part of the section of Alabama passed through is rich in mineral and timber. Between LaGrange and Birmingham the road traverses a large area which is not now satisfactorily served.

The road starting at Brunswick has frequent junction points with all the important systems in the state, including Southern Railway, Atlantic Coast Line, Seaboard Air Line, Central of Georgia, Louisville and Nashville, and Nashville, Chattanooga and St. Louis Railway. One of the strong features of the road is the almost innumerable combinations that can be made through

This road furnishes a short line from both Birmingham and Atlanta to the harbor of Brunswick.

It is estimated that the system when completed will be approximately 648.5 miles of main line, also that the total bonded debt will, in round figures, be about $31,000 per mile, including terminals, a substantial amount of equipment, shops and all facilities for putting the road into a condition to enable it to handle its business.

All terminal properties are covered directly by the Atlanta, Birmingham and Atlantic first mortgage bonds, except the terminals at Atlanta and Birmingham. The terminals at Atlanta and Birmingham are owned, respectively, by the Georgia Terminal Company and the Alabama Terminal Railroad Company. The capital stock of the Georgia Terminal Company is $1,500,000, and the capital stock of the Alabama Terminal Railroad Company $3,000,000. The entire capital stock of each of these companies, that is, the entire equity, is owned by the Atlanta, Birmingham and Atlantic Railroad Company and is subject to the lien of its first mortgage bonds.

On a conservative estimate, when the road has had time to get into good working shape and build up its business, the earnings per mile should exceed $12,000 gross. Taking this as a fair estimate, the road should earn.....$7,785,600
Estimating operating expenses at 70 per cent (including taxes) 5,449,920

Leaving net earnings per annum of.....$2,335,680
Estimated interest 1,200,000

Balance $1,135,680

The above estimates have been carefully calculated and it is believed that the results stated will be exceeded.

Finally, while the local business tributary to the Atlanta, Birmingham and Atlantic Railroad promises to support the road in view of present earnings, it will be seen that, owing to its through connections at Atlanta, Birmingham and other points, taken in connection with its low grades and high standards of construction, it has excellent advantages for securing through business.

The rolling stock and motive power of the road consists of 63 passenger, baggage and express cars; 4,256 cars for freight service; 13 road service cars and 72 locomotives.

RADICAL POLITICS CONDEMNED.

Radical reforming in politics is not always a popular move, particularly when the business interests of a state or community are at stake. This fact has been proven very forcibly by the results of the recent primary election in the state of Georgia. Hoke Smith was chosen about two years ago by a handsome majority, on a sort of a reform wave. Railroads and corporations were the principle objects of attack in that campaign, and since elected governor Mr. Smith has made a personal effort to see that all forms of large corporations were "radically regulated." His methods were so disastrous that the public did not relish the results, and another change was considered advisable. The result was the former railroad commissioner, Mr. Brown, was selected to make the race for the governorship. The overwhelming defeat of Governor Smith by the business people of that state under Mr. Brown's leadership, should serve as a warning to other radical office holders, that the public wishes to play fair, and is willing that all useful enterprises shall be properly protected and not harassed for personal or political gain. Anti-corporation politics will never appeal to the fair-minded voter when radicalism, under the guise of reform, is working a detriment to the business interests of the people. Reform is not reform when its results are disastrous to the welfare of a people. This the people of Georgia seem to realize and have placed their stamp of disapproval on it in a way that will not be forgotten soon in that state. It is believed that other localities will do likewise at the proper time.

CARS HANDLED BY EXCHANGE SETTLEMENT.

Mr. J. R. Cavanaugh, superintendent of car service of the Big Four, delivered an address recently before the Central & Western Association of Car Service, in which he made suggestions along the line of exchange settlement of cars, which proposition he has made a careful study of for many years. In fact, Mr. Cavanaugh is considered an authority on this subject. In his address he said, among other things:

Let us distinctly understand that every restriction on a car retards the accomplishing of the very purpose for which the car was built, namely, to take care of traffic offering from originating point to destination. After long and careful investigation, I have concluded that the solution is a system of car hire and equalization on junction or exchange balances. There is no system that can be evolved that will not be met with some objections, but I believe that the junction exchange plan will reduce such objections to a minimum. I have considered several plans in place of per diem, such as percentage of all revenue obtained from freight charges, switching, demurrage and reclaims to be paid the car owners in place of per diem, thus making them to a certain extent participators in the revenue derived from use of the car, but such an arrangement would be almost as burdensome in accounting as the present per diem plan. Under the exchange plan we deal only with our immediate connections instead of three or four hundred car owners. We do away with a lot of three cornered fights on account of discrepancies at remote points, thousands of miles away from the car owner. By the 20th of each month all car service accounts for the previous month should be settled. No voluminous reports to several hundred car owners for per diem on cars used. No large force of clerks to check up the stack of per diem reports received from several hundred roads, endless correspondence in regard to discrepancies, thousands of dollars outstanding unsettled account of the individual items too small to arbitrate, expense of errors in figuring and checking per diem, or elaborate expenses of postage and stationery.

REQUESTS COURTEOUS SERVICE.

The management of the Frisco System has issued a circular to the road's employes which is intended to impress them with the importance of being courteous to the public in all their dealings. The following timely suggestions are a portion of the circular letter:

One of the first and most irritating problems confronting public service corporations is that of securing courteous employes who will make friends and not enemies of those with whom business is done. The surly, boorish and hot-tempered employe is not only as a rule a poor employe, but he is a positive detriment to the company that hires him. On the other hand, a man or woman representing a company increases in value as he or she smooths the rough places of business impression instead of a client or customer inflamed with anger and resentment.

In a highly complex and technical business such as that of the railroad there are many things that you, with your training and daily experience, understand with perfect familiarity, but which the public do not understand; therefore do not assume that the public should comprehend them without asking questions, but when they make inquiry of you give them the courtesy of a reply just as full and clear as you can make it, and without any suggestion of superiority born of a greater knowledge.

Words are only the means of expression and manner is quite as important; therefore remember that a kindly and gracious manner is not only the sign and mark, but is to words what oil is to machinery in making them move effectively to their purpose.

RECEIVER FOR WHEELING & LAKE ERIE.

On June 8, the Wheeling & Lake Erie was thrown into the hands of a receiver. Mr. B. A. Worthington, vice-president of the company, was appointed receiver by the United States district court. According to the press dispatches, Mr. George Gould is quoted as follows:

"The receivership for the Wheeling and Lake Erie was inevitable after the Wabash-Pittsburg terminal had defaulted. The Wabash-Pittsburg Terminal Company unfortunately was overcapitalized. We probably could have carried it through, but I thought it was time to stop on behalf of the Wabash. The Wabash is a fine property with great earning powers and it will not be permitted to become further involved. The $8,000,000 Wheeling & Lake Erie notes coming due in August and guaranteed by the Wabash will not be permitted to embarrass the Wabash. The Wabash is perfectly able to take care of itself. Every youngster has to have the measles and the whooping cough and I do not know that they are any the worse afterwards."

The government of Mexico decided to follow the lead set by our government in assisting in irrigating the arid districts. An appropriation of $25,000,000 has been made by the Mexican government for that purpose. The leading statesmen and business men of that republic have always been liberal in their views in regard to promoting enterprises that are for the good of the country.

The assurance that this country will be favored with good crops this season, is a great relief to the minds of the business man and wage-earners of this country. Spring has been favorable, but the harvest time which is at hand is most assuring. Crop conditions are, as a general thing, flattering, except in flooded localities. Good crops means heavy traffic, which in turn means much to the transportation lines and factories, and those connected with them.

During the months of July and August the city of Quebec will celebrate quite extensively the ter-centennial of the founding of the city. Quebec is one of the oldest cities in the New World, having been founded in 1608. It is quite a historical city, as well as being the best fortified city in America. The British government has spent millions of dollars making it the Gibraltar of the Western Hemisphere. Within the very edge of the city is the historical battle field known as the Plains of Abraham. It was on this battle field in 1759, that the British wrested from the French the supremacy of the New World.

The state of Kansas has a new law requiring all property to be assessed its full value. This means railroad property as well. Under the old plan of assessment the roads of Kansas were assessed in 1907 at $70,000,000, but this year the companies voluntarily turned in their property as being worth $175,000,000. But the tax commission doubted the values given and fixed the total valuation at more than twice that amount, to be exact, at $356,064,599. Of the roads in Kansas, the Santa Fe leads in mileage, with a total trackage of 2,650.15 miles, and a total valuation of $120,661,257. The Missouri Pacific is second in trackage, with 2,348.32 miles, and a valuation of $78,896,346. The Rock Island is third, with a trackage of 1,066.47, and a valuation of $53,078,250. The Union Pacific is fourth, with a trackage of 985.92 miles, and a valuation of $41,379,349.

There never has been a time in the history of railroading in the West when there were so many roads affected and harassed with washouts caused by excessive rains, as during the past few weeks. From Montana on the north to Texas on the south, the railroad companies have had to contend with floods and make costly repairs after high waters have passed away. The states where the damages have been the worst are Montana, Kansas, Oklahoma and Texas, but the damages have been so serious in all of these states at nearly the same time that traffic and travel have been affected in a very large area. The conditions have been very serious at times for the roads, but the close of last month found the roads in good shape and most of the repairs completed. The loss of the agricultural products in many districts have been as heavy as that of the roads.

AMERICAN RAILROAD TIES FROM HONDURAS.

A railroad in Honduras which has just been opened to traffic as far as Ceiba, 35 miles, was built with creosoted pine ties from the United States, according to our government reports. The increased value of wood thus preserved is now well recognized by railroad men. The life of a railroad tie may be greatly lengthened, and sometimes more than doubled, by preservative treatment. In a humid climate, like that of Honduras, a pine tie in its natural state would be quickly destroyed by fungus. Large railroads of the United States treat with preservatives many, or all, of the new ties put in. One road is said to treat 10,000 a day. The increasing difficulty of procuring new ties, with the advancing prices, compels railroads to make them last as long as possible. It has been estimated that the railroads of the United States demand in a single year the ties growing on a forest strip one mile wide and three thousand miles long.

It is worthy of note that while creosoted pine ties are being shipped from the United States to Honduras, hardwoods are coming to the United States from that country. Americans are doing the shipping both ways. A tract of 8,000 acres in Honduras has been secured by an American company, which will cut the mahogany and other valuable hardwoods and ship them to the United States.

RAILROADS AND WOOD PRESERVATION.

The recent action by the board of directors of the American Railway Engineering and Maintenance of Way Association in appointing a committee of seventeen to investigate and report upon the subject of wood preservation has shown that the practical railroad men of the country recognize the importance of taking steps to conserve the rapidly diminishing timber supply of the United States.

Timber is one of the principal materials purchased by the railroads, and its economical use is a subject of far-reaching importance. More than 100,000,000 cross ties are used annually by the different railroad companies, and their average life in this country is not more than six or seven years. From a study of European methods, and the knowledge of wood preservation under conditions in this country, timber testing engineers say it is reasonably certain that an average life of from fifteen to twenty years may be secured by treating the tie with a good preservative and the use of improved devices for the prevention of mechanical abrasion, thus to a large degree diminishing the drain upon the timber supply.

While the quantity of timber used for ties is very great and the problem of a future supply is a serious one, yet this class of timber is not the only one which should receive consideration. A greater length of service from timber now used by railroads for bridges, trestles, piles, fences, and transmission poles is greatly to be desired.

A. L. Kuehn, engineer of track and roadway, Big Four Railway, is chairman of this special wood preservation committee, and C. G. Crawford, specialist in wood preservation, United States Forest Service, is its vice-chairman. The first meeting was held in Chicago in the early part of last month for the purpose of organizing and deciding upon a plan of work. The committee was divided into four sub-committees to take up the following lines of work:

Statistics and Economics, O. Chanute, consulting engineer, Chicago, Ill., chairman.

Preservatives and Specifications, H. von Schrenk, consulting timber engineer, St. Louis, Mo., chairman.

Adaptability of Woods and Their Preparation, W. K. Hatt, civil engineer, Forest Service, Lafayette, Ind., chairman.

Treating Processes, C. G. Crawford, specialist in Wood Preservation, Forest Service, Washington, D. C., chairman.

TRAIN DISPATCHERS' ASSOCIATION.

The Railway Train Dispatchers' Association closed their annual convention at Ft. Worth, Tex., on June 18, after selecting Columbus, O., as the next place of meeting and choosing the following officers: C. A. Mitchell of Hartford, Conn., president; T. D. Dellmin of Youngstown, O., vice-president; J. F. Mackie of Chicago, secretary and treasurer (re-elected).

The executive committee of four members was elected as follows: T. W. Fitzgerald of Sparks, Nev., George B. Johnson of Fort Worth, S. H. Brown of Kansas City, Mo.; and George W. Flynn of Kansas City, Kan.

FROM MY OBSERVATION CAR.

BY R. R. JESTER.

The National Association of Freight Traffic Agents held its annual convention at Put-In-Bay on June 17, 18 and 19, at which was a large attendance, both ladies and gentlemen. A number of prominent railroad officials were slated for addresses, among whom were W. B. Biddle of the Rock Island, M. E. Ingalls of the New York Central Lines, J. N. Tittemore of the Wisconsin Central, and J. H. Clarke of the Nickel Plate. A splendid social program was provided for the ladies. It was an excellent convention and one which any railroad traffic man could enjoy and appreciate from an educational standpoint.

"The object of the National Association of Freight Traffic Agents shall be to give its members a more comprehensive education in traffic and transportation matters, to promote among them greater loyalty to the companies by whom they are employed, and finally to recommend such improvements in service and uniformity in methods as may result from deliberation and

W. J. BYRTH,
PRES. NATIONAL ASSOCIATION OF FREIGHT TRAFFIC AGENTS.

discussions at its meetings." Those who are eligible are authorized representatives of railway and steam navigation lines, including general, assistant general freight agents, division freight agents, general agents, commercial, traveling, contracting and soliciting freight agents engaged in the solicitation of freight traffic for their companies.

The following is the list of officers chosen for the ensuing year: President, W. J. Byrth, Great Northern, Cincinnati, O.; vice-presidents, Jas. Weller, Pa. Ry., Pittsburg; T. S. Trainer, Star Union Line, Columbus, O.; Lee Dwelle, L. & N., Cincinnati; secretary, George F. Hild, Union Pacific, Cincinnati; treasurer, Howard Smith, C., B. & Q., Cleveland, O.

* * *

The new president of the National Association of Freight Traffic Agents, Mr. W. J. Byrth, is an aggressive railroad man who needs no introduction in his section of the country. He started with the Santa Fe at Topeka in January, 1882, and after eight years resigned as traveling freight agent to accept a similar position with the Great Northern with office at Chicago, and was later transferred to Cincinnati, where he is now located as general agent. Though he does not expect to move away from Cincinnati soon, yet it is easy to understand that able, popular men like Mr. Byrth are transferred through promotion. He has been a prominent character and hard worker in the association which has just honored him with the office of president and was formerly a strong worker in the Traveling Freight Agents' Association.

* * *

During the recent session of Congress Chauncey Depew related the following story: "Mr. President, in my active railroad days there was a great complaint because the brakemen or trainmen did not announce through the cars clearly, loudly, and distinctly the stations. I issued an order that they should do so, whereupon I received a letter wanting to know whether I expected to get a clear tenor voice for $50 a month. Mr. President, it seems to me that if $50 a month was hardly sufficient to fill a railway car at the time it was approaching the stations, and yet did tolerably well, $7,500 a year ought to fill this chamber." There is a railroad moral in this story that is significant to the railway service. Do railway employes get proper credit for their intellectual attainments in proportion to their remuneration?

* * *

To anyone who delights to give full play to his imagination, here is a story credited by the Locomotive Engineers' Magazine, which surpasses anything for that purpose ever published about railway locomotives. Its author has a robust imagination. Other comments are unnecessary, but here is the story:

Philadelphia, Pa., Sept. 24, 1907.

Editor Burlington Enterprise.

Dear Sir: I am an inspector of foreign boilers at the Baldwin Locomotive Works. I was traveling through Africa some time ago and I saw the most powerful locomotive in the world. I want to tell you about it, so you can let your readers know that they have larger engines there than they have here.

This engine has five acres of grate bars, four acres of netting in the smoke-box, and it took a man a day and a half to walk through the cylinders. Every time the engine exhausts it rains for 20 minutes afterwards. There is an elevator that goes to the headlight to hoist the oil, as it requires five barrels of oil to fill it. It takes two men 45 minutes to light one signal lamp.

The engineer has the X-rays to watch for signals, and after running six months he goes blind. It takes two astronomers with a powerful telescope to see her going, and the glare of the headlight can be seen through a hill one-half mile thick.

It took nine carpenters four months to build the pilot. They use a steam shovel to give her coal. The tank holds 27 carloads, and every time they wash the boiler it is necessary to drain the Suez Canal. The pony wheels are as large as an ordinary turntable used here. The round-house force holds a picnic in the fire-box every summer.

She carries 860 pounds of steam and 360 pounds of air on the train line. She can haul 720 loads and in good weather she might walk away with 722. She runs from Kimberly to Johannesburg—a distance of 900 miles. The wind of the train has been known to knock down monster trees of the forest, as she makes the run in three hours and eleven minutes.

When she leaves the track there is an earthquake in China four days later. The throttle is pulled by a stationary engine in the cab. The lubricator holds four barrels of oil. The train goes so fast that when she is stopped she is going ten miles an hour.

This is a true story, Mr. Editor. I can vouch for it.

FRANK E. FITZPATRICK.

An eastern exchange publishes the following story: The proprietors of lunch counters in London railway stations date their eggs. They mark on the shell of a boiled egg the date it was laid. The evident purpose is to reassure doubting customers. A party of travelers a few weeks ago arrived at a station shortly before midnight, and, following the habit of most travelers, made at once for the lunch counter. They demanded eggs from the waitress and asked that they might have some of that day's laying. "H'im sorry," she said, "but today's heggs is all gone, but—"glancing at the clock, which pointed to a quarter before 12—"if you'd not mind the date, h'I could give you some of tomorrow's."

PERSONAL

EXECUTIVE, OPERATING AND PURCHASING.

B. A. Worthington has been chosen receiver of the W. & L. E.

F. P. Frazier of Chicago has been chosen a director of the C. & A.

W. C. Fisk has been chosen vice-president and a director of the Hudson & Manhattan.

Robert Meighen has been made a director of the Canadian Pacific, vice **Sir Robert G. Reid.**

J. L. Soule, auditor of the Missouri River & Northwestern, has been appointed superintendent.

G. P. Williams has been made superintendent of terminals of the K. C. S. at Port Arthur, Tex.

J. T. Noah has been appointed trainmaster of the Monongahela Connecting, vice **John Kerr,** deceased.

M. H. Young has been made superintendent terminals of the C., B. & Q. at St. Louis, vice **F. L. Johnson.**

Chas. F. Gill has resigned as chairman of the official classification committee on account of ill health.

C. B. Fletcher, superintendent of the Illinois Central, has removed his office from Cherokee to Ft. Dodge, Ia.

John A. Zender has been made general superintendent of the L. & N. E. at Bethlehem, Pa., vice **R. G. Kenley.**

L. M. Souders, western superintendent of the Empire Line, has removed his office from Cleveland to Chicago.

Oscar G. Murray, president of the B. & O., has been chosen a director of the P. & R., vice **Chas. Steele,** deceased.

Theodore Brent has been chosen assistant to the third vice-president of the Rock Island-Frisco lines, office at Chicago.

F. H. Skelding and **C. S. McMaster** have been made receivers of the Wabash-Pittsburg Terminal, office at Pittsburg.

A. B. Newell has been made division superintendent of the Mexican Central at Mexico City, vice **J. H. Kertin,** resigned.

H. L. Joyce has been made manager of the tugs and barges of the Central of New Jersey at New York, vice **H. T. Wintringham.**

J. C. Riddell, superintendent of the Little Kanawha, has been made acting superintendent also of the Marietta, Columbus & Cleveland.

O. F. Wagenhorst has been made general superintendent of the Delaware & Eastern at Margaretville, N. Y., vice **R. B. Williams,** resigned.

J. T. Hallisey has been made acting division superintendent of the Intercolonial, vice **G. M. Jarvis,** deceased; office at Truro, N. S.

H. B. Earling, general superintendent of the C., M. & St. P. in South Dakota and Montana, has removed his office to Miles City, Mont.

P. H. Hough has been appointed chief train dispatcher of the Wisconsin Central at La Crosse, Wis., vice **A. C. Millington,** transferred.

C. Murphy has been made acting general superintendent of the Canadian Pacific (Ontario division), vice **James Osborn,** granted leave of absence.

T. J. McCune, trainmaster of the St. Louis, Brownsville & Mexico at Kingsville, Tex., has been appointed superintendent at Vanderbilt, Tex.

W. J. Henley has been elected president of the Chicago & Western Indiana at Chicago, vice **Benj. Thomas,** resigned. **J. B. Warren** is general manager.

J. G. Rawn, vice-president of the Indianapolis Southern, has been made general manager also and **F. B. Harriman** becomes general superintendent, vice **C. L. Ewing.**

T. C. Powell, vice-president of the C., N. O. & T. P., has authority over the operating and traffic departments, vice **W. J. Murphy,** deceased. **Fairfax Harrison** has been chosen a director.

J. M. Davis has been made general superintendent of the Southern Pacific lines east of Sparks, Nev., office at Salt Lake City. **H. W. Crawford** has been made superintendent terminals at Galveston, Tex.

John Lepla has been made assistant division superintendent of the C. & N. W. at Chaldron, Neb. **E. O. Mount** becomes trainmaster at Fremont, Neb., and **E. M. Pangle** becomes trainmaster at Norfolk, Neb.

Arthur Lee has been chosen vice-president and **A. W. Smith** has been made general manager of the Coal & Coke Railway at Elkins, W. Va., and **J. A. Emmart** has been made assistant general manager at Gassaway, W. Va.

T. W. Roxbrough has been chosen president of the Chaddo & Choctaw, office at Rosboro, Ark.; **M. R. Smith** is vice-president and general manager; **DeWitt Davis** is secretary and **O. H. Helbig** is auditor and traffic manager.

E. E. Serrine has been made division superintendent of the Mexican Central at Monterey, vice **Chas. Stich,** resigned. **G. W. Vanderslice** is division superintendent at Chihuahua, vice **W. T. Provence,** resigned. **L. S. Bourne** becomes terminal superintendent at El Paso, Tex.

TRAFFIC AND ACCOUNTING.

James Allen has been made general freight agent of the Cotton Belt at Tyler, Tex.

T. V. Murray has been made traveling freight agent of the I. & G. N. at Dallas, Tex.

W. B. Leeds, formerly president and director of the Rock Island, died in Paris June 23.

F. S. Brooks has been made assistant general freight agent of the Santa Fe at Galveston, Tex.

O. M. Ellsworth has been appointed traveling freight agent of the Rock Island at Pittsburg, Pa.

D. M. Cameron has been appointed auditor of the Southern Indiana, vice **A. F. Williams,** resigned.

Herbert Wiley has been made traveling passenger agent of the Monon and the C., H. & D. at Chicago.

I. E. Williams has been appointed assistant auditor of the International & Great Northern at Palestine, Tex.

W. H. McCormick has been made assistant general passenger agent of the P. & R., office at Philadelphia.

E. A. Neil has been appointed traffic manager of the Brookhaven & Pearl River, office at Buffalo, N. Y.

H. D. Waldron has been made assistant general passenger agent of the Maine Central, office at Portland, Me.

S. B. Sweet has been made general agent of the freight department of the L. E. & W., office at Indianapolis.

F. S. Warrington has been appointed general agent of the Santa Fe at Sacramento, Cal., vice **W. P. Hinchman.**

Andrew Simpson has been appointed general agent of the American Refrigerator Transit Co. at Des Moines, Ia.

L. M. Foss has been appointed general agent of the Chicago Great Western at Butte, Mont., vice **W. H. Comer.**

James A. Giraud has been appointed commercial agent of the St. Louis, Brownsville & Mexico at Houston, Tex.

W. R. Crow has been made general manager of the Erie Despatch, vice **H. S. Stebbins,** resigned; office at Chicago.

A. B. Church has resigned as advertising manager of the C. & S. at Denver, to take service with a private company.

M. O. Bicknell has been made assistant general freight and passenger agent of the Southern Pacific at Tucson, Ariz.

Frank A. Walsh has been appointed auditor of the Ashland & Western, at Ashland, Ohio, vice **John T. Walsh,** resigned.

T. J. Anderson has been made general passenger agent of the H. & T. C. at Houston, Tex., vice **M. L. Robbins,** resigned.

E. E. Wood has been made New England freight agent of the Seaboard Air Line at Boston, Mass., vice **Edwin Butler,** resigned.

J. B. Cabell has resigned as traffic manager of the Mexican American S. S. Co. at New Orleans, and the office is abolished.

S. C. Leake, formerly traveling freight agent of the R., F. & P. at Richmond, Va., has been made commercial agent at that point.

A. B. Hill has been made general agent of the passenger department of the Lehigh Valley at Chicago, vice **George Eade,** deceased.

H. E. Suckling, assistant treasurer of the Canadian Pacific, has been appointed treasurer, vice **W. S. Taylor**, who retired on June 30.

H. M. Dressell, city passenger agent of the Wabash at Pittsburg, Pa., has been appointed general agent, passenger department, at Pittsburg.

F. E. Winburn has been appointed freight claim agent of the Atlanta & West Point and of the Western of Alabama, with office in Atlanta, Ga.

F. D. Miller, traveling passenger agent of the Illinois Central at Atlanta, Ga., has been appointed district passenger agent at Birmingham, Ala.

R. L. Porter, auditor and assistant secretary of the Wabash-Pittsburg Terminal has been appointed also auditor of the Wheeling & Lake Erie.

W. V. Carroll has been made general northern agent of the North & South Despatch at 726 Monadnock building, Chicago, vice **G. Roy Hall**, resigned.

W. H. Upton, general superintendent of the Paris & Great Northern, has been appointed also general freight and passenger agent, vice **Charles Griffith.**

W. B. Wheeler, general agent, passenger department, of the Lehigh Valley, at Buffalo, N. Y., has been appointed general western passenger agent at Buffalo.

B. R. Petriken, auditor of the Little Kanawha and the Bellington & Northern, has been appointed also acting auditor of the Marietta, Columbus & Cleveland.

James E. Allen has been appointed assistant general freight agent of the St. Louis Southwestern, with headquarters at Tyler, Tex., vice **R. C. Fyfe**, resigned.

G. Roy Hall has been appointed traffic manager of the Duluth, Rainy Lake & Winnipeg, in charge of all freight and passenger traffic, with office at Duluth, Minn.

E. D. Edgerton has been appointed assistant auditor of the Newton & North Western and the Fort Dodge, Des Moines & Southern, with office at Boone, Ia.

R. C. Bryant has resigned as general agent of the Mexican Central at Monterey, Mexico, and **W. H. Shaw** has resigned as commercial agent at Torreon, Mexico.

W. R. Lynch, traveling passenger agent of the Big Four at Cleveland, O., has been made general agent of passenger department at that point, also of the L. S. & M. S.

G. B. Tyler, commercial agent of the Atlanta & West Point and the Western of Alabama at Cincinnati, Ohio, has been appointed central western agent of these roads.

M. R. Maxwell, formerly assistant general freight agent of the L. E. & W., has been made general freight agent, vice **S. B. Sweet**, retired on a pension; office at Indianapolis.

Robert F. Kelley, assistant general passenger agent of the Wabash-Pittsburg Terminal, has been appointed general passenger agent of this road and of the Wheeling & Lake Erie.

Fred G. Salter has been appointed European traffic manager of the Grand Trunk and of the Canadian Express Company, with headquarters at 20 Water street, Liverpool, Eng.

W. Oscar Hamilton, treasurer of the Trinity & Brazos Valley, has been appointed secretary and treasurer of the Ft. Worth & Denver City, at Forth Worth, Tex., vice **William Streator.**

John F. Hardin has been made commercial agent of the Queen & Crescent at Atlanta, Ga., vice **Ray Knight**, deceased. **J. A. Chilton** has been made traveling passenger agent at Dallas, Tex.

W. C. Parker has been appointed division freight and passenger agent of the Chicago, Milwaukee & St. Paul at Ottumwa, Ia., vice **C. J. Mikesh**, who has been transferred to Cedar Rapids, Ia.

J. H. Webster has been made general agent of the passenger department of the Erie at Cincinnati, vice **A. C. Hilton**, transferred to Buffalo, N. Y., in a similar capacity, vice **H. E. Huntington**, resigned.

P. M. Seymour, general freight and passenger agent of the Little Kanawha and the Bellington & Northern, has been appointed also acting general freight and passenger agent of the Marietta, Columbus & Cleveland.

C. P. Lamprey, formerly general traffic manager of the Detroit, Toledo & Ironton and the Ann Arbor Railroads, has been appointed traffic and industrial commissioner for the Chamber of Commerce of Toledo, O.

H. S. Drysdale has been made New England freight agent of the Gould Lines at Boston, vice **Henry A. Rich.**

C. W. Andrews has been made commercial freight agent of the Missouri Pacific at Dallas, Tex.

H. E. Huntington, general agent of the passenger department of the Erie at Buffalo, N. Y., has been appointed general passenger agent of the Buffalo, Rochester & Pittsburg, with headquarters at Rochester, N. Y., vice **E. C. Lapey**, resigned, on account of ill health.

B. W. Green has resigned as general freight agent of the Pacific division of the Canadian Pacific at Vancouver, B. C., to become manager of the Johnson Wharf Co. at that point. **W. B. Bulling**, assistant general freight agent of the Canadian Pacific eastern lines, has removed his office to Montreal from London, Ont.

Owing to the consolidation of the Mexican Central and the National Lines' offices in this country, the following changes are announced, effective July 1: **J. T. Whalen** is made southern agent, office at Cincinnati; **W. F. Payton** has resigned as general eastern agent of the National Lines at New York and business is handled by the Mexican Central office at that point; **G. W. Hackley**, general agent of the National Lines at Chicago, assumes charge of the Mexican Central business at that point; **F. J. Bonavita** becomes traveling freight agent at Chicago; **Frank Moe**, commercial agent of the National Lines at St. Louis, assumes charge of the Mexican Central business also, vice **W. H. Richards**, resigned; **J. N. Strasser**, traveling freight agent of the Mexican Central at San Antonio, Tex., resigned and office is abolished; **Chas. Hogle**, commercial agent of the National Lines at Cincinnati, resigned.

ROADWAY AND ENGINEERING.

George A. Ricker has been made consulting engineer of the Canadian Pacific.

A. G. Shaver has been made signal engineer of the Rock Island, office at Chicago.

S. D. Brady has been made acting chief engineer of the Marietta, Columbus & Cleveland.

Herman Denburger has been made supervisor of bridges and buildings of the L. & N. E. at Bethlehem, Pa.

R. G. Kenly has been made engineer of maintenance of way of the Lehigh Valley at South Bethlehem, Pa.

F. T. Meyers, chief engineer of the Mississippi Central, has removed his office from Roxie to Hattiesburg, Miss.

O. F. Barnes has been made division engineer of the Erie at Susquehanna, Pa., vice **R. A. Van Houten**, resigned. **R. P. Madill** becomes division engineer at Rochester, N. Y. **Harold Knight** is division engineer at Salamanca, N. Y., vice **G. W. Ferguson**, resigned to become city engineer of Paterson, N. J.

MECHANICAL.

B. B. Moore has resigned as assistant superintendent motive power of the C., St. P., M. & O.

F. M. McNulty has been made superintendent motive power of the Monongahela Connecting, office at Pittsburg, Pa.

J. E. Libby has been made master car builder of the Swift Refrigerator Transportation Co., vice **O. M. Stimson**, resigned.

John L. Shick has been made storekeeper of the New York, Susquehanna & Western at Stroudsburg, Pa., vice **F. C. Pearce**, resigned.

G. W. Hedge has been made assistant master mechanic of the Canadian Northern at Winnipeg, Man., vice **G. S. McKinnon**, resigned.

W. B. Page has resigned as master mechanic of the P. R. R. at Camden, N. J., to become superintendent of machinery of the Mexican Central, vice **G. H. Burk**, made superintendent of locomotives.

John Sarton has been made general foreman of the Pecos Valley shops at Amarillo, Tex., vice **R. E. Wyllie**, resigned to go with a private company. **Wm. Booth** has been made assistant foreman at the same place.

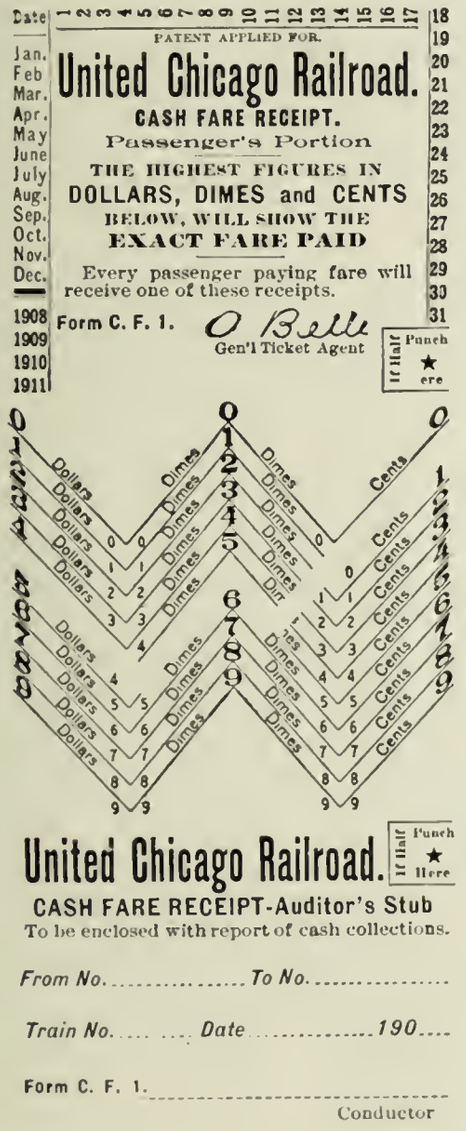
W. J. Haynen has been made master mechanic of the Gulf & Ship Island at Gulfport, Miss., vice **A. Bardsley**, resigned on account of ill health. **W. D. Martin, Sr.**, has resigned as master smith and moved to Jackson, Tenn.

OBITUARY.

A. J. Burt, auditor of the Michigan Central, died at Detroit on June 11, aged 61 years.

NEW FORM OF CASH FARE CUTTER AND RECEIPT.

Mr. Geo. M. Rose, Jr., chief clerk in the passenger department of the Nashville, Chattanooga & St. Louis Railway at Nashville, Tenn., is the inventor of a cash fare cutter which should meet with popularity on account of its simplicity, ease of operation and convenience in size. It is small enough to be carried in the conductors' vest pocket, can be quickly set to cut the amount of cash fare paid, and, when set, a receipt can be cut with one direct pull, whereas all forms now in use are more or less awkward to handle and frequently consume much time of the conductor. It is claimed that with the new


PATENT APPLIED FOR.
United Chicago Railroad.
CASH FARE RECEIPT.
Passenger's Portion
THE HIGHEST FIGURES IN
DOLLARS, DIMES and CENTS
BELOW, WILL SHOW THE
EXACT FARE PAID
Every passenger paying fare will receive one of these receipts.
Form C. F. 1.
Gen'l Ticket Agent
If Half Punch ★ ere
United Chicago Railroad.
If Half Punch ★ Here
CASH FARE RECEIPT-Auditor's Stub
To be enclosed with report of cash collections.
From No. To No.
Train No. Date 190
Form C. F. 1.
Conductor
STROMBERG, ALLEN & CO., CHICAGO

PASSENGER'S RECEIPT AND AUDITOR'S STUB.

cutter a conductor can cut receipts twice as fast. Another strong point claimed by Mr. Rose is that the new receipts when cut cannot be manipulated to the advantage of passenger or anyone else and cannot be re-issued. If the passenger's portion of the receipt is altered in any way its value is decreased, and if the conductor's stub is altered its value is increased.

The size of the cutter is about 2⅛ by 5¾ inches. The box portion is made of hard aluminum and will hold fifty receipts. Hinged to the lower portion of the box is a frame holding three flat, angular blades made of sheet steel. The blades are nicely adjusted in the frame, each working independent of the other, and are shoved in position by thumb-screws.

ACT OF CUTTING CASH FARE RECEIPT.

The frame carrying the blades swings away from the receipts so that stubs can be removed and new receipts inserted. The receipts are printed with zig-zag lines through the center which correspond with the angle of the blades. The lines on the left of the receipt indicate "Dollars," in the center "Dimes" and on the right "Cents." The points of the blades are placed under the figures desired and with one quick pull a receipt is cut. The blades lay flat on the receipts and will follow the last one to the bottom of the box. The N. C. & St. L. Ry. and several other lines will place the new cutters and receipts in the hands of their conductors as soon as they are manufactured.

ASSOCIATION OF RAILWAY CLAIM AGENTS.

The Association of Railway Claim Agents held its nineteenth annual meeting in Kansas City, Mo., May 26 and 27. The present membership is about 300, representing seventy of the leading railroads. There were over 100 in attendance. The officers chosen are as follows: President, L. L. Losey (I. C.); First Vice-President, J. G. Trimble (Q. O. & K. C.); Second Vice-President, Parker Dickson (Q. & C.); Third Vice-President, W. G. Bissell (G. N.); Secretary-Treasurer, E. H. Hemus (A., T. & S. F.). The next meeting will be held in Detroit, Mich., in May, 1909.

MECHANICAL

NOTICE.—Communications are requested for publication relating to locomotive and car designs and equipment; also to special tools to facilitate shop work, or any subject tending to promote the efficiency of the Mechanical Department of railways. All practical men are earnestly requested to contribute early notices of official changes and additions of new equipment for the road and shop, both by purchase and construction.

Description of novel and meritorious devices recently designed that are of general interest will be published in our reading columns free of charge.

All communications relating to this department must be addressed to the Mechanical Editor, Railway Journal, Chicago, Ill.

M. C. B. & M. M. CONVENTIONS.

An unusually large membership was in attendance at the M. C. B. & M. M. conventions at Atlantic City this year. The railway supply exhibits were larger in number, also, than during a convention past. For this the manufacturing companies and the supply men in general, deserve great credit. They work hard to produce the very latest devices and equipments for the roads and make extra efforts to display them annually to those interested in applying them on the roads.

The topical program of the convention was interesting throughout. Many valuable discussions were made by able railway officials. The opening meeting of the M. C. B. Association was held on Wednesday a. m., June 17. After prayer by the Rev. N. D. Cadwell, the Hon. F. P. Stoy, mayor of Atlantic City, welcomed the convention in a brief address, after which President Dow of the Association delivered his annual address, a portion of which is as follows:

ADDRESS OF PRESIDENT DOW.

A few thoughts suggest themselves to my mind which this association should consider.

The necessity for co-operation and co-ordination of the work of the various railway associations has led the American Railway Association to propose changes in its organization which will admit of more harmonious relations between the various railway associations, and at the same time tend to centralize the recommendations for authoritative action with that association. In view of the nature of a great deal of the work of the Master Car Builders' Association, it is important that this association co-operate to the fullest extent with the American Railway Association, and in order that this may be accomplished, some change in the constitution and by-laws of the Master Car Builders' Association will be necessary.

The constitution at the present time does not provide for filling vacancies which may occur in the office of president and vice-president or members of the executive committee, except by election at the convention, nor is it required that these officers of the association and members of the executive committee should be actually engaged in the railway service. I would therefore recommend that the constitution be changed to cover these points, after the subject is given full consideration by the proper committee.

In the past, a large list of subjects has been referred to the association, and in the future, I would recommend reducing the list so as to give better opportunity to investigate and discuss the subjects more thoroughly.

The importance of the work of the association is such that the members who accept membership on a given committee should do so with realization of the work required of them and fully understand the necessity of attending as many meetings of the committee as the chairman may feel it is necessary to call. It should be remembered that when a member fails to attend a committee meeting the committee is not only deprived of the benefit of his experience, advice and opinion, but the representation from a given district, as it is generally the practice, in appointing committees, to endeavor to cover, as far as possible, different portions of the country. I would urge the members of the association to seek rather than avoid committee work. The subjects considered are all of moment to the railroads you represent and it is their interest as well as those of the association which must be considered.

In the past, it has been the practice by a great many repair men to ignore or neglect the use of the repair cards, as called for in rule No. 76 M. C. B. Rules of Interchange. Some look at this as a dishonest act on the part of repair men, but in my opinion it is only a case of neglect on the part of those making repairs. In order that the full benefit of the rule may be obtained, as was the intention of the members of this association when it was adopted, I would recommend to all heads of car departments the issuing of such instructions to their repair men as would make it impossible for them to either ignore or neglect the use of this card, and thereby avoid the suspicion of dishonesty.

The adoption of a standard M. C. B. coupler.—Several years ago an ineffectual effort was made in that direction. I believe the time is now ripe for such action.

There has been a steady increase in the use of steel in car construction. The steel car has come to stay and I believe this association should give attention to this important matter to the end that its use may be extended more and more. I would recommend the appointment of a committee on standard steel shapes.

NEW OFFICERS.

The following is the list of officers chosen by the M. C. B. for the ensuing year: President, R. F. McKenna, D., L. & W., Scranton, Pa. Vice-presidents, F. H. Clark, C., B. & Q., Chicago; T. H. Curtis, L. & N., Louisville, Ky.; LeGrand Parish. Executive committee, J. E. Muhlfield, B. & O.; C. E. Fuller, H. D. Taylor, J. F. Walsh and C. A. Schroyer.

GENERAL FOREMEN'S CONVENTION.

The recent convention of the International Railway General Foremen's Association, which was held on May 25, 26, 27, 28, and 29, just as the RAILWAY JOURNAL had gone to press, was the largest and most successful convention ever held in the history of the association, both in regards to size of attendance and work accomplished. Foremen from most all the leading roads were in attendance; not only members but other railway mechanical officials. The convention was addressed by Mr. J. F. DeVoy, mechanical engineer of the Chicago, Milwaukee & St. Paul; Robt. Quayle, superintendent of motive power of the Chicago & Northwestern; C. B. Smythe, assistant mechanical engineer of the Union Pacific; Angus Sinclair, of Railway and Locomotive Engineering, and M. H. Haig, editor of the Railway Master Mechanic, all of whom made splendid talks. The exhibits made by the railway supply firms were a drawing card at the convention, as the foremen took considerable interest in the devices and products displayed. The many supply firms represented took special interest in entertaining the members and their ladies. The social features were unusually pleasant. Special credit is due the executive committee and officers of the supply men's organization, and of these Mr. J. Will Johnson of the Pyle National Electric Headlight Company, was a leading factor and an enthusiastic worker.

Outside of regular routine work and discussion of papers, several important business matters were taken up and handled, the full proceedings of which will appear in book form for distribution to the members. The association starts on its new year with a surplus in the treasury and a constantly growing membership. The papers presented were all discussed at some length. The following names were presented for honorary members: J. F. DeVoy, Angus Sinclair and Robert Quayle. It was decided to have a reception committee and the president is authorized to appoint same about a week before the convention, each year. The association voted to set May 1st as the beginning of each fiscal year. All paid-up memberships hereafter expire April 30th of each fiscal year. Messrs. L. H. Bryan of the D. & I. R. Ry. and F. W. Rhuark of the B. & O. were chosen to represent the association at the Atlantic City conventions in June. The list of new officers was published in the June issue of the RAILWAY JOURNAL. Anyone wishing application blanks can secure same by applying to any member or to the secretary, E. C. Cook, Royal Insurance Building, Chicago.

ADDRESS OF PRESIDENT FAY.

The following is the address of President Fay, delivered at the recent convention of the International Railway General Foremen's Association:

Gentlemen, Members of the International Railway General Foremen's Association and Guests: We have now assembled for the Fourth Annual Convention of this Association formed in St. Louis during the month of September, 1905. The object of the Association is the dissemination of information relative to methods in vogue in the various railway shops in the United States, Canada and Mexico. Unfortunately, our membership, while large, has not been strongly evidenced by the attendance at our conventions. We trust that time will remedy this state of affairs, and that the superintendents of motive power of the various railways will recognize our worth to the extent of insisting on the attendance of those foremen who are eligible to membership, with all expenses paid by their respective railroads. In the discussions of the past three conventions there have been brought out many valuable and instructive points which have benefited every individual member. I am sure that we have reason to believe that this may be said of all future conventions. Certain it is that the members of this Association are closer to the actual conditions both in the roundhouse and the back shop than anyone else can be. It is their function to exercise a close, general or immediate supervision over all departments of modern railway plants. This being the case, it is reasonable to suppose that they will have ideas of immense benefit to their superiors, and it has been conclusively demonstrated that they do have.

In my mind there is no question but that this Association is a step in the right direction, and with immense educational possibilities. I bespeak for it a long and prosperous life. In conducting its affairs during the year just passed, I have received a cordial co-operation and the hearty support of its officers and members, and we have worked out an elaborate and instructive program for discussion. I am confident that every member has taken the same interest in the welfare of the organization as have its officers. We have, unfortunately, been handicapped to a slight extent by the arrearages of many of our members, a condition which I hope to see corrected at this convention.

The business of organizations of this character cannot be satisfactorily transacted unless each member shoulders his part of the financial burden, which in any event is not burdensome. I would, therefore, at this time request that all delinquent members take care of their financial obligations to the Association. I am advised that the entertainment committee has arranged for a very nice program for our entertainment while here. I have also arranged for several well known railway officials to address us at this time. There is no question but that these addresses will be both entertaining and instructive. Would also request that the members of the association be as prompt as it is possible for them to be, in attending the various meetings which will be held, as the absence of a few of our members retards the progress of our meetings.

With these few remarks and trusting that the efforts of your officers during the past year in behalf of the Association have merited your approval, and thanking you very much for your consideration, the business of the Association for which we have assembled at this time, will now proceed.

ADDRESS OF MR. ROBERT QUAYLE.

The following is the address of Mr. Quayle of the C. & N. W. before the General Foremen's Convention in May last:

Your secretary called me up and asked me to come down here and say a few words to the boys, and I am here. I never prepared an address and I couldn't do it if I tried. I never give the subject matter much thought because I haven't much thought on these matters until I am put right in the niche, then I do the best I can.

The question that comes to me this morning is, "What are you here for?" You, no doubt, have given that matter more consideration than have I. What are we here for, and to make it more personal, we ought to ask ourselves the question, "What am I here for?" What can I do as a member of this organization to make it stand out so conspicuously that other organizations in connection with the railroads will notice this organization and see that we stand for something, and that we are doing something. It is not what we say or how well we appear; it is not how much money you have, but it is what we do that counts in this active, aggressive age. It is not just what we are doing in our local shop. We have heard it said that certain work has been reduced from so much to so much. What was the standing of that cost before these reductions were made? A man comes to me and says: "I can put a device on your engine that will save you so much in fuel, and I can put another thing on your engines that will cut down the cost of repairs." I immediately say that we can do that ourselves and if he can put any improvements on the power, all right, but we can change our worst practice to our best practice ourselves.

If the unit of cost of any article in your shop is so much and you reduce it to $1.50 and some other man had reduced it to $1.00, it hasn't required any advanced thought on your part. The total of the whole thing is this: What does it cost you at this round-house and that round-house to dispatch an engine? You will find that it costs anywhere from 40 cents to $1.25 on a locomotive. You find that where you have a greater number of engines you can dispatch them for less money. The trouble is, you have to have certain fixed charges. You have to have a dispatcher and a fellow to knock out fires. The man who knocks out fires might just as well knock out twenty fires, and it is hardly fair to make comparisons. But you can see that the man who has the greater number of engines can dispatch them with a minimum cost.

In your shop repairs, it occurs to me since you have been discussing the matter that you ought to get down, not to what it has cost you, but how does your cost now compare with other roads. Is your cost for repairs on your road 3½ cents a mile or 4 or 5? If it is 5½ cents a mile on any road in this country, it is too much. It is out of proportion with what other railroads are doing and what they can do and we ought to know these things. I believe that to have an intelligent supervision of work, we must have an intelligent idea of the cost of the work; not only of the supervision so far as the fixed charges are concerned but of the different processes and methods that this work is going through and what each process is costing you, and we want to know whether we cannot introduce some other method that will be very much cheaper and better. The man today who builds a little fence around himself and becomes isolated in a large degree and he thinks: "This shop of mine over which I have supervision is all right and the set of men that I have about me are the only men, and we are It"—when a man begins to feel that way, he is a back number. The world is making such progress that if we go away for six months or a year and then come back we find we are back numbers. The other fellows who have been in the harness doing the work while we are away have outstripped us in the race. We are making such rapid strides and such excellent strides that we have to keep continually at it in order that we may stand a little bit in the front. On the other hand, I do not believe that we ought to be too modest about these things. It is just as bad for a fellow to be too modest as for a fellow who thinks he is accomplishing it all. I find that I will enter some shop and see something in that shop, and I will gaze at it a minute or two and say, "Why do they do this?" And when I think about it, I have learned something, no doubt. I want to say to you as general foremen of shops that we see things and we do not see them. You know what I mean; you see something and you pass it by; somebody asks you if you saw a certain operation, and you say, "I saw it but I did not see part of it."

MEN MUST THINK.

The first essential toward the success of a man is for a man to think, and think clear down through whatever you have. The man who takes up air brake mechanism must first begin with the atmosphere—the component parts of the atmosphere; he must understand what the pressure of the atmosphere is. He must see it through the engineer's valve—through the triple valve, and so on; he must take a little wire and trace it from the time it is received into the pump. He must know what the offices of the different pieces of mechanism are and have an intelligent idea so that if anything goes wrong he knows probably by the weakness of the different functions of the air brake where to look for the trouble, and if he does not locate it there he knows the next point to go to, where the second greatest number of failures occur, and this man is equipped to accom-

plish something in a moment's time. So it ought to be with you and so it ought to be with me. You are filling positions because of your alertness—because of your intelligence and because you have shown to the man who in position is your superior—you have shown to him clearly that you have something in you that the other fellow did not have and that quality that is in you he has discovered, and he says, "There is the man we want to promote, because he has qualifications that will make us a man that will be efficient, and he has the ability that will help to raise other men up to a higher efficiency. If that be true, you men as superintendents of shops or general foremen ought to get about you men of intelligence—men of such rare qualities and ability who will see things and be able to eliminate and cut out all the unnecessary movements that are being made and get down to the actual movements that are necessary to accomplish a certain thing in a certain time. We should make every movement count.

You see a man in your shop take a certain piece of work and it has to go from the machine shop to the tin shop and the man has to travel several hundred feet and back. What is the matter with us having a little machine and doing all that cross-head work right where the cross-head is being fitted and save all this going back and forth? These are things that count. Where you have a shop, as some of you may have, and have charge of two or three thousand men, you can readily see that the movements of these men amount to a good deal. Your office is to know that these men are not making any more movements than absolutely necessary. It means labor to walk back and forth—it means effort on the part of the men; whereas, instead of putting that effort into useless movements, put it into things that count. If you have been advanced to a position because of your intelligence, how much of that intelligence are you imparting to the under fellow? Is it your method to find fault with a man because he isn't doing the work as good as you? You cannot expect that a fellow who is getting $80, $90 or $100 a month to do as much work and do it as intelligently as the man who is getting $150. He hasn't the same opportunities that you have and it ought to be your business and my business to get these men who are under us (we call them subordinates), get them in front of us, and have certain stated times to discuss ways and means, and your superior intelligence, knowledge and ability ought to, in a very large measure at least, lift these men up into a higher standard of usefulness to you, and when he is working for the company and getting better results he is helping you, because it is your organization and these men under you by their larger, broader scope of things that they have to do with and their increased knowledge is going to lift you as individuals into higher positions. Do not find fault with this fellow because he is not doing a thing, but question, him: "Don't you know a better way of doing this?" Do it in a thoughtful manner and get the other fellow to think. What we want to do is to get men to thinking.

Take the premium work and the piece work. A man realizes that he is simply a machine—a factor in this world, and his only aim is to accomplish a certain amount of work on certain lines and in the accomplishment of it he is going to bring to himself larger returns. He begins to study how he can do more of this work with less effort on his part and how, by the time his eight or ten hours is past, he can accomplish more work and bring to himself greater earning power. He begins to think. It is that thought that will better his wage earning power and it is that thought which will lead to your success. How many hours have you put in after you have gone home nights studying how you can improve your men and how you can broaden your views so that you can help yourself? Man is a selfish being, and if for no other reason we ought to study the situation for self. Take the big men of the world today. Why are they filling high positions? Is it because somebody boosted them into the positions? Count the men that you know who did not have any more opportunity when they started than you had. Those men have simply come into their positions because, as Shakespeare says, "There is a tide in the affairs of men which, when taken at its flood, leads on to fortune." When the opportunities came they plunged into the tide and went on to success. I was talking with the superintendent of our shops about a certain individual and we were needing a man for promotion. He said, "That man can neither read nor write. He stands in his own light." An intelligent man otherwise in this generation who does not know how to read or write! It is a disgrace to the people with whom he associates. When he was a young man he ought to have been burning the midnight oil. If his father could not have helped him there certainly has been some one negligent. Gladstone, after he was seventy years of age, mastered the Greek language, and I think there isn't any one on this floor today who is not able to master higher mathematics.

You have these men about you and you should ask them why they are doing such things so and so. If they are turning off a piston rod, ask them why they do not grind it. Is it possible that in thirty years there has been no improvement in this line? Get these men before you. Do not drive it into them in a rough manner but in an intelligent way, and they won't feel that you are clubbing them. A club over your head don't do you any good and if you have a man who has to have a club over his head, get rid of him. When a man feels that you are driving him, he gets discouraged and don't care; you drive away his usefulness and his interest, and when his interest is gone he is no good to himself or anybody else. Encouragement ought to be the shop motto. Get every man to do the best he can and to lift himself up to the highest within the limits of his ability.

PRACTICE ECONOMY.

We have a shop that was built in 1872 and occupied in 1873. The shop, so far as its physical condition is concerned, is no doubt what you could term a back number—the construction of it is such. We have twenty-one available stalls and yet have no trouble in getting sixty-five locomotives in for heavy general repair, and we can run it to seventy if necessary, and do it economically. The fellow who doesn't get economy today in comparison, will simply have to get down and out. I do not care what his name is.

The thought I want to bring to you is this: It is your duty to make suggestions as to what should be done. I noted on a paper something about the different forms of construction of a shop for a transfer table. It is a good thing to think upon these matters so that when you are called upon you may be able to give an opinion; but my duty and your duty more particularly is to do the best we can with the tools and the conveniences that are at our fingers' ends. It does not do for you and me to sit down and talk about what we could do if we had all these facilities, but what we can do and ought to do with the tools that we have. You would be surprised when you get at the thing right when you find what can be accomplished with old methods. We should get busy and study it out. In our shops, Oscar Otto has a plan. Every Monday morning at eleven o'clock he calls his men about him and they go over the work of the past week. He will say, "We ought to have gotten out fifteen engines last week, but I find that we only got out fourteen; something is the matter." They have a representative of the store department there and he talked about the material, and in discussing this matter, they put the responsibility right where it belonged. The man is there with his associates, and he feels keenly the position, although any remarks are made in a spirit of kindness. The next week it may be some other fellow. Sometimes a delay has been caused by something over which he had no control and the responsibility is passed on to the fellow who ought to have had the control. It may have been up to the superintendent of the shops, and if so, he is held accountable for the unnecessary delay. It simply strings these fellows up and with such a tension they will next week profit by the failures of last week. So many of us have failure after failure and if we continue to have failures, just like the boy in college, we have failed. When these men in the shops find that they have failed in certain things, they take a little pride in not having it occur again. I do and you do. It is human nature. It is in every fellow. If he has any respect for himself he wants to do as much and just as well as the other fellow. That is true, and you can do that by getting these men around you and injecting into them the right spirit, and if you haven't the right spirit in yourself, just go away in the woods and hate yourself a few weeks and come back and say, "I am all right." If you are going to get the highest efficiency you must train your men and you must help them. I get my master mechanics about me every once in so often and we talk about various things and they give me lots of information. They hit the old man pretty hard many times, and I say, "Come on. I am here for that purpose." I am not putting on my mittens to defend myself. They just want to hit me a square blow, and the harder they hit me the better I like it, simply because of this fact. What is my position? My position is simply a man—a little pivot around whom the organization swings. If the organization cannot

accomplish more than the man at the head of it, it isn't very good organization. The man at the head of it can instill into his men such characteristics as will get at the very best results, and he does it in such a manner that will inspire and instill confidence, and if the men feel that he is a helping friend—that he is a fellow to whom they can go with their troubles—they will be ever ready to assist. If you put yourself on a pedestal and have a film of ethics about you, that these men cannot approach you, you know what it means. Get the men to love you and you will get the men to work for you; they will come to you with all their troubles and then you will begin to eliminate all these things that are wrong. The superintendent of motive power, the master mechanic or the general manager of a railroad who sets himself up on a pedestal so that his men cannot approach him on these matters is a failure, and if you do not want to tell them so, you may tell them that Mr. Quayle said so. If that applies to the general manager, how much more it applies to you men who have the men approach you every day.

I do not know how well your shops are organized. An engine comes in for general repairs and it takes so many hours. The men on piece work accomplish it in so many hours, and the first thing you know he has the hours cut down. Before the engine is in the shop at all it is stripped and each has his certain work to do.

We have no overhead cranes and I do not think I want them so far as lifting engines are concerned, because when carrying them over, all the men are watching them. There isn't any reason why the movement of any engine should exceed 2½ minutes. Your traveling crane is to save time. If you have several men on duty the loss of time watching the crane amounts to quite a little.

FAITHFUL APPLICATION TO WORK.

You were not the fellows who, when the whistle blew, threw your hammers up in the air; you simply finished what you were doing and did it well. I came here to talk to you just the same as I would talk to the men in our own shop. The motive power men of this country depend upon you and look to you for the men who are going to fill the positions on the railways of this country. You are the fellows who must fill the positions by diligent, faithful, earnest application to the work that you have in hand. Do not go around Robin Hood's barn to do the work, but do the work well. When you are in one position, let the other work drop and the fellow above you can and will see that you are coming on all right. When you get another position, fill that in the same manner, and your success is assured; the success of the railroad you represent is assured. The power will be kept up; the number of engine failures will be reduced and the work will progress in such a manner that you will take natural pride in what you and your associates have accomplished.

I take great pleasure in the thought that in so far as the motive power is concerned, it is not I but the men who are associated with me, are working with me and assisting me in every way possible to make it a success, and they are helping themselves. If any of you think that the superintendent of motive power is the only fellow, get it out of your heads. He is only a little factor and they get him on their shoulders and they pass him along and keep carrying him along. It is a continual delight to me. Why should not I get around these men and help to lift them up—make them more useful to themselves and their fellowmen? Would I be a man if I did not? If that is true of the superintendents of motive power, isn't it true of you? The same kind of flesh, the same kind of sentiment, the same kind of heart power, and the same kind of everything that goes to make up a human being is in you and in me. Let us use it to the very best possible advantage for the other man, and when we are doing that the other man uses his powers to lift you up.

SHOP DISCUSSION.

Many of the Santa Fe foremen in Kansas and Colorado held a meeting on June 9th, at which they discussed topics of interest to their department. The topics handled were as follows: Repairs of Engines, Engine Failures, Terminal Delays, Car Department Matters, Bonus, Economical Lubrication, Fuel Economy, Material Economy, Boiler Compound, Account 47 and Shop Expense, Supplying Engines, Staybolts and Fire Box Inspection, Ash Pan and Front End Inspection, Boiler Washing, Apprentice Instruction, Fire Department, Harmony, Duties of Road Foremen of Engines, Miscellaneous.

POUNDING OF LEFT MAIN DRIVING BOX.

At the recent convention of the International Railway General Foremen's Association, papers were presented and discussions held on the topic, The Pounding of Left Main Driving Box in Preference to the Right: What causes the Pounding, and How Could It Be Avoided? The following papers were presented:

PAPER BY C. H. VOGES, BIG FOUR.

I think I have a serious topic to discuss. This refers to high speed engines only.

We all know that both sides of the engine should be equal in weight and action, that is, the reciprocating parts should correspond with the counter balance of the driving wheels. All engines of today have the right side of the engine for the lead. When an engine is turned out of back shop and properly broken in and turned over to the roundhouse foreman for service, we leave the wedges down enough so the boxes are free between the shoes and wedges' face. Now, when the engine takes the regular run in passenger service the engineer in charge must take good care and keep these wedges up in their proper place at all times. If he neglects to do this it will give the box a chance to start pounding on journal.

We all know the engineer's position is on the right side of the engine and naturally he would detect anything quicker in the running gears on the right side than he would on the left.

Now, if the engine is taken good care of by the engineer and the wedges set properly, why should the left main box pound sooner than the right one? I have never given this a thoughtful study until the last three or four years, or have never noticed it so much since we have these large high speed passenger engines.

Probably when the left side follows the right side there must be some resistance or strain of some kind.

I have prepared sketches showing the right and left main crank pin in different positions. Sketch No. 1 shows the right crank pin approaching the forward center and the left pin the top quarter. If the engine is working in the forward motion the power developed by the steam in the left cylinder is in the direction of the arrows shown on sketch. This would practically make the left front pedestal jaw a fulcrum between the left crank pin bearing and the right pedestal jaw. After the point of cut-off on the right side has been passed and the pressure in the back end of the right cylinder greatly reduced, whatever lost motion there might be in the right driving box or in the shoe or wedge, would be found at the points marked X in the sketch. Consequently when steam is admitted to the front end of the right cylinder no pounding would be heard, although there might be considerable lost motion in the right driving box. As the wheels revolve and the right pin approaches the bottom quarter, and the left pin the forward center as shown in sketch No. 2 a slightly different combination is found. The lost motion in the driving box will be at X shown in sketch and when steam enters front end of left cylinder there will be a pound if there is any lost motion in the left driving box. According to this view it will be seen that as long as the engine is working in the forward motion the left side acts more or less as a slack adjuster for the right side.

This would give the right side an advantage over the left side. I believe this has more or less to do with, if it is not the direct cause, of the left side pound.

To illustrate what we found on one of our high speed engines after having made 154,570 miles. This engine was received from the works December 28, 1905, and taken in shop for general repairs November 14, 1907. We found the left main shoe worn one-fourth inch on face and the right main shoe one-eighth inch. This is a very good illustration that there is something on the left side which causes this.

On November 20, 1907, we turned a Pacific type engine, 6416, out of back shop after receiving a general overhauling, and up to Feb. 29, 1908, this engine made 26,826 miles. When this engine left the back shop I personally spoke to the engineer in charge and told him to watch the left main driving box, which he did. The engineer in charge of this engine watched the driving boxes on this engine himself; he set up the left main wedge during the time I just mentioned, one and three-eighth inches, while he only set up the right main about five-eighths inch. I am positive that there was no pound on the left main driving box on this engine from the time she left back shop until

Feb. 29, 1908, but I attribute this to the carefulness of the engineer in watching the wedges of the left main driving box. However, I know that if the engineer in charge of this engine had not watched the left main driving box there would have been a pound.

I believe the illustrations I have given you will prove that there is something on the left side of an engine which causes this pounding. I am satisfied it is not in the counter-balancing of the wheel, as we have weighed the counter-balance and reciprocating parts on a Pacific type engine and found them to be exactly correct.

Now, I have tried to give you all I know about the pounding of the left main driving box and I will be pleased to hear from all of you on this topic, as I think it is a very important one and should have technical consideration.

PAPER BY E. R. BERRY, C., B. & Q.

This is a subject that has been before the railroad men for a good many years, and has been discussed, pro and con, by the railroad men all over the country. A great many reasons have been assigned for it, but in my mind there is very little to be said on the subject. That it does exist, there is no question, and on all locomotives.

The right side of the locomotive being the lead, the lost motion is concentrated in the left, thereby producing a pound; the more lost motion, the greater the pound. When the engine is put in the reverse motion the pound will transfer to the right side. If the engine is properly taken care of, the lost motion kept up, such as wedges, driving box brasses and rod brasses, the pound is not sufficient to cause any great alarm, or do any great amount of damage. It has been said by some that it was due to the engineer not taking as good care of the left side of the engine as he does of the right, but I do not think very much of this theory.

Then, again, I think the counter-balancing of our engines has a great deal to do with the pounding. I think our present method of counter-balancing is, to a great extent, guesswork. For instance an engine is counter-balanced so she runs very smoothly at a certain speed, but when you increase or decrease that speed, she does not run so smoothly and then the pound is more perceptible. I think if our engines were properly counter-balanced, the pound would be alleviated to a great extent.

PAPER BY W. H. KIDNEIGH, U. P. RY.

There are several causes that we find which would result in making an engine pound in any one particular box. For instance, if the crown brass was bored too large for the journal and put up in that condition, especially on the main pair of wheels, the engine would develop a pound almost immediately, although this would not show up so bad if on any other pair. The main boxes on any engine will begin to pound before any other box; that is if the same care has been taken in fitting brasses, shoes and wedges, etc. The reason for this is that the power is transmitted directly to this pair of wheels from the cylinder; they in turn transmitting the power to all the other drivers, thus putting a heavier strain on these boxes. The proper laying off of shoes and wedges has much to do with driving boxes pounding and so has the journal. If a journal is out of round ever so slightly it will cause a bad pound almost as soon as an engine is put in service. Especially is this true if the journal is flat through center line of motion or when the pin is a little below front center line. Also an engine that for any reason carries more steam on the left side than on the right will cause a pound in the left main box on account of the greater amount of friction caused by this side doing more work. I have often thought that excessive lead on one side of an engine—this lead, of course, being caused by a slipped eccentric or by putting up an eccentric in roundhouse without running engine over to determine where it was set—will cause a pound on that side, in preference to the other. This is due to the greater pressure exerted on the pin at center line of motion as would be the case with the larger port opening at this point caused by excessive lead, causing journal to pound back and front of brass. I think that if more pains were taken in laying off shoes and wedges, getting engine and rods in perfect tram, also fitting driving boxes so there would be a bearing for nearly half a brass, and seeing to it that wedges were set up properly at all times, the pounding of driving boxes would be reduced to a minimum.

MASTER BOILER MAKERS' CONVENTION.

The International Master Boiler Makers' Convention held at Detroit late in May, was a success in every way. The attendance was large and the list of topics handled was an instructive one. As the convention was held late in the month, particulars could not be given in our June issue. To enumerate all the many pleasant features and social entertainments, would require more space than we have at command this month. Suffice it to say that the supply men entertained most liberally every day (and night, too), and there was nothing lacking in the social portion of the program. Many ladies were in attendance which, of course, made the gathering more interesting in every way. The convention recommended Louisville, Ky., as the convention city for 1909. The list of officers chosen for the ensuing year was published in the June issue of the RAILWAY JOURNAL. The reports of the secretary and the treasurer show a healthy growth of the association. President Wagstaff delivered a splendid address, a portion of which is found elsewhere in this issue. Mr. Chas. Schwab, formerly president of the United States Steel Corporation, addressed the members along business lines.

ADDRESS OF PRESIDENT WAGSTAFF.

The importance of correct principles and good workmanship in boiler construction cannot well be overestimated. The steam boiler is today the most potent factor in our complex civilization. It warms us in winter, cools us in summer, brings our food and fuel to our doors. Wherever you find man is civilized you find the steam boiler. We find such messengers as the giant steamship Lusitania bringing the old and the new world into neighborly relations made possible, or largely contributed to, by the boiler makers' art. Much has been said of the wonders accomplished by electricity and of its greater application in the future. However, if you follow the line to its origin, starting either with the modest incandescent lamp in the most exclusive mansion in New York or Paris, or the powerful electric locomotives that haul the heavy express trains out of Grand Central station, you will find the man behind the gun is our old associate, the steam boiler. Much skill has been exercised by the designing engineer in perfecting the triple and quadruple expansion engines; much has been accomplished with the steam turbines; much has been done in harnessing the various water powers of the world, but when we get down to nature, it will be found that the final link between the energy in the coal pile, and its transformation into useful work, is our old friend, the steam boiler. I point out the wide application of our work, not in a boastful manner, but merely to show the universality of our calling, that we may realize our responsibilities and be governed accordingly. Strict adherence to established rules and formulas should be the guiding principle of boiler making, and under no consideration should a boiler maker deviate from those well-known laws of accuracy and safety.

MAKING CONVENTIONS SUCCESSFUL.

Mr. John H. Smythe presented a splendid paper on the Proper Preparation and Presentation of Subjects and Papers, which is as follows:

In order to make our convention successful and profitable to ourselves and our fellow craftsmen at large, we should manifest much more interest in the work of preparing subjects assigned to us. We have had the pleasure of meeting together a number of times in convention. There should have been much more accomplished than what has been done. I have only noticed twice where our work has been referred to. In fact we have been criticized for not accomplishing more than we have done. It is true we meet and have a social time. But we must not forget we have our duty to perform.

There are many subjects that cannot be disposed of at one convention, such as Rules and Formulas for Building Boilers. Such subjects cannot be digested, as I said before, at one convention, but should be carried over from one convention to another. We must always be sure that we are right, and then recommend them for adoption. If the public sees that we are conservative in our deliberations they will be ready to adopt our recommendations. There should be standing committees chosen from the best material the association has.

As to preparing subjects and presenting them to the convention, the speaker suggests that when a committee is appointed, the chairman should write to the members of his committee at once (and not wait six months after he has been appointed), asking them to submit to him their views on the

subject, the chairman taking the data from the letters received, condensing their papers into one. Mail each member a copy for his approval or disapproval as the case may be, returning them to the chairman. He repeating the same until the paper is satisfactory to every member of the committee. As it is impossible for us to meet in committees this plan appeals to me as the best.

In the method employed in the past the individual members of the committees write a paper on the subject to which they have been appointed without consulting their fellow members, with the result that papers are brought in at variance with each other, and the committee instead of coming to the convention united in opinions are each ready to argue for its own particular idea, and there is nothing for the convention to adopt.

The idea of appointing committees is to have the subject thrashed out by competent men in private during the year and the best plan presented to this convention by a united committee prepared to convince the association that it is the best plan. By doing so we will soon have results and put an end to the cry that the International Master Boiler Makers' Association has met for years and accomplished nothing.

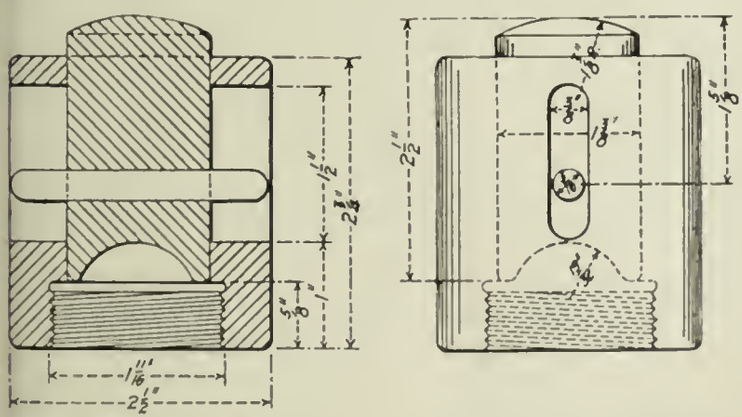
After the paper is completed the chairman of the various committees should submit them to the secretary of the association, he in return to get out advance program in full not later than sixty days before the convention. You can readily see the advantages of this. As few of us are used to speaking in public we get confused when facing an audience like this, and ofttimes do not say the things we mean to say. But if we have the advance program at home, and read the paper we can gather our thoughts and then we will be able to talk intelligently on the subject. In order to make our conventions successful we must all do our part.

APPLYING FLEXIBLE STAYBOLTS.

The following paper on "Best Method of Applying Flexible Staybolts," was presented by Mr. R. V. Anderson:

One of the most important jobs on a locomotive boiler is the applying of flexible staybolts. Every part of the work has to be carefully performed to be successful. In this paper I will describe the method used in the Rogers Locomotive Works, where I am employed, and I hope the members will not hesitate to criticize it, as only by openly criticizing one another's methods will we eventually arrive at the best.

The holes in the sheet are punched 1-32 inch smaller than the diameter, of the root of the thread at the point of the



Sleeve for Holding on While Riveting Flexible Staybolts.

sleeve, and reamed with a taper reamer that has a guide on the point which goes through the firebox sheet. There is a collar fastened on the reamer at the proper place near the head which stops the reamer from going in too far, and allows 3-32 inch for thread, and makes all the holes exactly the same size. The tap has also a guide and a stop on it so the holes are tapped the same. We only use one reamer and one tap in the holes and get a perfect thread. The sleeves are screwed in with a stud nut, driven with a ratchet lever. The bolts are run in with an air drill until they are nearly home, then adjusted carefully by hand, taking care to get an equal load on all the bolts without pulling the firebox sheet out of line. While riveting the bolt we have a simple device for holding on which may be new to some of you. It obviates all danger of spoiling the thread on the sleeve. It consists of a nipple which is screwed on to the sleeve, and has a sliding plunger inside which fits on the head of the bolt. The holding on is done by a common holding on sledge which backs up on the outside end of the plunger. We have just completed an order of 60 boilers for the Wabash Railroad with 298 flexible staybolts in each, making a total of 17,880 bolts. The inspector would not permit any calking on the sleeves, yet we had only to renew 10 of them because of leaks. In conclusion I wish to say that the most important thing needed in putting in flexible staybolts is good judgment. You can have your holes perfect, your reamer perfect, your tap perfect, your bolts and sleeves perfect, yet an injudicious or careless workman will spoil the whole job.

CARING FOR BOILER FLUES WHILE IN SERVICE.

A committee composed of Messrs. E. W. Rogers, John German, Chas. Letteri and E. J. Hennessy, presented a paper on Best Method of Caring for Flues While Engine is on the Road and at Terminals, and Best Tools for Same, the text of which is as follows:

Whenever flues leak, the leaks are stopped by use of the sectional expander. If tubes are poor or thin and in the judgment of the workman there should be a possibility of bursting tubes, the sectional expander is used, with the shoulder ground off.

In case the tubes are so poor that leaks cannot be stopped with sectional expander, they are removed. The sectional expander is used exclusively on this road; roller expander not operated on Lake Shore and Michigan Southern.

The question of leaking flues has been the study of every superintendent of motive power and master mechanic and foreman boilermaker, to overcome the flue problem; to prevent flues from leaking and few failures.

The trouble is due to various causes. We will admit that a great deal of care can be operated, both on the road and at the engine houses both in feeding boilers and in firing, also proper attention given at dump pits and at the engine house. When fire is cared for they should be placed forward, and front grates kept covered to prevent cold air coming in contact with flues and back flue sheet. I do not think we can lay it all to the enginemen, but with my judgment, flues cannot be put in locomotive boilers better; then there are at the present time (for instance) the flues in front end of boiler which we do not have any trouble with, yet they are operated by apprentice boys and handy men. With an iron shim wrapped around the flue for a ferrule, and only just rolled, not beaded, only about ten per cent of the flues beaded in front end; yet we hardly know what a leaky flue is in the front end. Now, gentlemen, does this not plainly show the cause? Is it not workmanship? I will admit that improper tools in use will make flues leak, such as the beading tool, the most dangerous tool that can be used, if not used in the proper manner. I have seen shoulder put on inside of flue holes 3-32 inch high just from the use of beading tool not properly handled. If flues will give such good results in front end and the great trouble is the back end, it must be due to bad water and subject to various temperatures. I have seen reports from roads that have put in the treated water and have reduced the boiler work and flue failures to great advantage.

This subject should be taken up by all members of the association and thereby debated upon, as it is one of the most important subjects to be presented to the railroad world at the present time.

It is earnestly requested every member will give his experience as to the use of the sectional expander or the roller expander, as we have reports from different roads that some roads have adopted the exclusive use of the sectional expander, while others use the roller expander.

MR. SCHWAB AND FAME.

In his address to the International Master Boiler Makers' Association, Mr. C. M. Schwab, said in part:

"I want to be plain with you. I believe that the manufacturer in this country will always demand not what is cheapest, but what is best. Your efforts should be to see how well you can do your

work. The best will always demand the attention of the community. The broad general scope of the country's industries today is retrenchment. The manufacturers are all economizing. But I do not believe the time will ever come when in this country economy will entirely take the place of a demand for quality.

"The ambition of every American workman is to advance. The success of a man is determined by his superiority in his work over his fellows. It is the exceptional man who does something better than somebody else. It is the same with the business man. Your continual aim should be for a greater efficiency than those you work with. It is the duty of every man to do his best. We are all proud of this great country of ours. It is bound to go ahead, despite the recent depression. There is no greater barometer of the conditions than the steel industry.

"In 1880, when I first became identified with the steel business, there was sold in the United States 1,000,000 tons of steel. In 1900 the amount was 7,000,000 tons; last year it reached 25,000,000 tons, and in ten years from now the sale of steel will reach 40,000,000 tons a year.

"Fifteen years ago while I and my negro man, Bob, were driving home from the mills at Homestead, we met a lady and her little girl walking along the road. The lady pointed to my carriage and said to the little girl:

"'Dearie, there goes Mr. Schwab.'

"The little girl looked very earnestly at my negro driver and then at me. I was somewhat upset when she very innocently turned to her mother and anxiously inquired:

"'Which one is Mr. Schwab, mamma?'

So much for fame.

"I have seen a good many phases of life and I have known the time when the factory whistle was a very welcome sound to me and when it was not. But I want to say with all candor and sincerity, and with all the honesty there is in my heart, that life never was so sweet to me as when I was doing my share in the workshop."

LOCOMOTIVE CONNECTING RODS—STEEL.

BY F. F. HOEFFLE.

The modern steel as a material for connecting rods is claimed to be much more superior than iron, and is thoroughly recommended as such by men who have had a large experience and dealings with both metals. In the main it seems quite reasonable from a practical point of view that these men possessed of this practical knowledge should stand in position to know. However, the brightest minds will differ greatly in opinion on the same subject.

The steel rod has made great advancement in the displace- of the iron one, yet we find men of good authority who still cling to the iron. It may perhaps be well to remark as for an illustration, when the steel T-rail, and the steel tire, were first introduced on railroads, they met with many reserves of opinions, as to the results and merits the steel would hold against the iron rail and tire. The past experience in this case has clearly demonstrated that the steel rail and tire have driven the iron rail and tire completely out of the market. And engineers who fully appreciated the situation gave up the use of iron entirely. These facts are unquestioned, so we may say is the case regarding the modern steel rod. Steel is not subject to changes in structure as iron. It being more homogeneous and more elastic than iron, and will not become crystalline by the vibrating element such as shocks and jolts this particular member is forced to endure. Steel is a mixture of iron and carbon—it is crystalline in structure—it is governed by its chemical constitution and influenced by the percentage of carbon it may contain.

The tensile strength of rod steel varies from 70,000 to 80,000 pounds per square inch with an elastic limit in the neighborhood of 50,000 pounds per square inch. Steel of a higher strength is often used, but 70,000 to 80,000 pounds steel is preferred, for with a higher tensile strength you gain strength at the expense of ductility and flexibility.

The higher elastic limit of steel over iron is one of the main advantages claimed for the steel rod. It might be well to explain at this point just what is meant by the term elasticity or elastic limit, as it is a term often used but only thoroughly understood by a few. The theoretical definition of elastic limit is as follows: Whenever a substance such as steel or iron is by means of torture stressed to that degree of punishment so as to have its form changed it will be elastic so long as it will exactly return to its original form. A practical description or definition of elastic limit or elasticity would be as follows: When a substance such as iron or steel is placed under a pulling strain, until the elastic limit is reached, there is no visible stretch or change in form, but when the elastic limit is reached a noticeable stretch begins. If the test specimen was in the rough when the elastic limit was reached, the scale will crack and drop off. So while a piece of rod steel of one square inch sectional area might require 80,000 pounds to break, if its elastic limit was 50,000 pounds it should not be loaded over 45,000 pounds. As the elastic limit of rod iron is only about 35,000 pounds per square inch we can make a steel rod considerably smaller and still maintain a good factor of safety.

For forging to be elastic it is quite necessary that its physical condition should be uniform throughout the entire section, that each and every particle shall be attached to its neighbor equally, and that none shall be squeezed abnormally out of its true position. In practice a connecting rod as it comes from the hammer is not in a condition approaching the above unless it has received subsequent annealing. This is very important. Its elastic condition should at all times be well observed, no matter what record the steel may have been possessed of in its original billet form. Again, it may be well to remark, that the breaking down of good material in service is sometimes caused by poor manipulating of the material when first constructed. One of the most destructive elements in regards to this subject is the presence of residual stresses resulting from cold working in the process of forging. Again, unequal cooling or permanent internal sets produced in the surface.

NEW USE FOR MANGANESE STEEL.

A good example of how the development of one industry helps another is found in an order for manganese steel discs recently placed by the Cutler-Hammer Clutch Company of Milwaukee. This company, in addition to manufacturing magnetic clutches, makes a specialty of lifting magnets for handling pig iron and scrap metal. The growth of this latter business and the natural desire of the manufacturers to perfect every detail of their product has led to the adoption of manganese steel for coil shields—the coil shield being the flat disc fastened to the under side of the lifting magnet for the double purpose of protecting the magnetizing coil and interposing between the two poles of the magnet an area of non-magnetic material. Brass, which is non-magnetic, has heretofore been used for this purpose. Ordinary steel will not do because it is a magnetic metal and would serve to conduct the magnetic lines of force from pole to pole instead of compelling them to seek a passage through the material to be lifted. Manganese steel seems to be the ideal metal for this purpose. It is non-magnetic, like brass, and infinitely harder—so hard, in fact, that the continued hammering of the pig iron or other metal on the under surface of the magnet makes not the slightest impression on it. The 50-inch magnets recently furnished by the Cutler-Hammer Clutch Company to a number of steel mills in the Pittsburg district are all equipped with manganese steel coil shields instead of with the brass coil shields formerly used.

MASTER BLACKSMITHS' CONVENTION.

The International Railroad Master Blacksmiths' Association will hold its next annual convention at Cincinnati, the third Tuesday in August.

The Grand Hotel, one of the most popular hostelries of the Queen City, has been chosen as the official headquarters. The rates on the American plan are as follows: $3 per day each, without bath; $3.50 per person with bath. European plan, $1.50 per day; where two in a room, $1.25 per day each; rooms with bath, $2 to $2.50 per day each. Messrs. George Massar and Fred F. Hoeffle are on the hotel committee. Program and particulars will be published in the August issue of the RAILWAY JOURNAL.

Messrs. L. C. Hopkins, J. P. Mahoney and J. L. Benedict of Chicago have incorporated the Consolidated Supply Company; office at 321 Dearborn street, Chicago. They will handle steam, electric and mill supplies.

WABASH'S NEW PRAIRIE TYPE ENGINES.

In view of the comparatively small number of Prairie type locomotives built, the completion of an order of sixty of this type for the Wabash Railway by the Rogers Works of the American Locomotive Company is particularly interesting. These engines are intended for fast freight service and according to officials of the road will be used to some extent in passenger service. A number of the same class have been in service on the Wabash for over a year and it is reported that their performance has been remarkably satisfactory both as to tonnage capacity and cost of maintenance. They are operating on grades from 26 feet to 45 feet per mile and are handling from 1,750 to 2,100 tons.

Thirty of the engines have 70-inch driving wheels and 37¼-inch leading truck wheels, while the other thirty of the order have 64-inch driving wheels and 33½-inch leading truck wheels; otherwise the two lots are identical in design.

These engines are practically duplicates in design of fifty of the same type built by this same company for the Chicago, Burlington & Quincy Railroad. There are, however, several features of the design which so differ from the usual practice as to be of special interest. Principal among these are the design of the cylinders, which are provided with piston valves, and the arrangement of the valve motion, which is of the Stephenson link type. The cylinders are so constructed that the centers of the valve chamber are midway between the upper and lower rail of the frame and almost in line with the frame centers. This permits of the use of a rocker shaft located on the lower rail of the frames just ahead of the forward pedestal with a single upward extending arm inside of the frames to which the valve rod and radius bar are both connected. This construction is evidently employed in order to bring all the parts of the valve motion more nearly into the same vertical and horizontal planes than they are with the usual design of piston valve cylinders when the Stephenson link motion is used.

The frame construction also differs somewhat from the usual practice. The main frames are of cast steel with double front rails. The upper rail is spliced to the main frame in the usual way and is bolted to the front bumper, while the lower rail is integral with the main frame and extends only beyond the cylinders. The principal difference in frame construction, however, is the use of two auxiliary rails, independent of the main frames, located 11½ inches each side of the center line of the engine and bolted to the bottom of the cylinder saddle and to the frame filling casting just ahead of the cylinders.

Both of the above features of design have been the standard practice for this type of engine on the Chicago, Burlington & Quincy Railroad for a number of years and have proved very satisfactory.

The trailing truck, which is of the outside bearing side motion type, is also of the same design as that which has been successfully used for a number of years on the Burlington road.

The first thirty engines of the order equipped with 70-inch driving wheels have a total weight in working order of 216,000 pounds, of which 157,500 pounds is carried on the driving wheels. The cylinders are 22 inches in diameter by 28 inches in stroke, and with a boiler pressure of 200 pounds they will exert a maximum tractive effort of 32,900 pounds. The last thirty of the order with 64-inch driving wheels have a total weight, in working order, of 214,000 pounds and 156,000 pounds on driving wheels. With the smaller driving wheels and the same size cylinders and the same boiler pressure as the other lot, they will exert a maximum tractive power of 36,000 pounds.

PRAIRIE TYPE PASSENGER ENGINE, WABASH RAILROAD.

AUTOMATIC ASH PAN.

At the close of the first session of the Sixtieth Congress, a bill was passed requiring railroad companies to equip their locomotives with automatic ash pans. This is something new in railway legislation for it is believed that a majority of the national law makers do not know the difference between an automatic ash pan and any other kind, nor the merits of it. The object of requiring roads to use automatic ash pans is for the safety and convenience of the firemen. It is needless to state that the result of the bill passing means lots of work for shop men, also affords a market for a device. The RAILWAY JOURNAL will be pleased to publish descriptions of any automatic ash pan to which our attention has been called. Here is a splendid field for some enterprising man or men. Get up an automatic ash pan device and sell it.

CAR LIGHTING ENGINEERS ORGANIZED.

The Association of Car Lighting Engineers was recently formed at Ogden, Utah, the object of which is to further the interests of car lighting, particularly electric car lighting, and to try to bring about the use of standards on interchanged equipment on the railroads of the United States and Canada. Meetings are to be held annually. The following is the list of officers: President, A. J. Farrely, Electrical Engineer, Chicago & Northwestern; First Vice-President, E. M. Cutter, Signal Supervisor, Southern Pacific; Second Vice-President, A. J. Collett, Electrical Engineer, Union Pacific; Secretary and Treasurer, G. B. Colgrove, Chief Electrician, Illinois Central; Executive Committee, H. C. Malloy, Chief Electrician, Lake Shore & Michigan Southern; O. W. Ott, Chief Draughtsman, Oregon Short Line; G. W. Murray, Chief Electrician, San Pedro, Los Angeles & Salt Lake; C. W. Terry, Chief Electrician, Minneapolis, St. Paul & Sault Ste. Marie. The next meeting will be held in Chicago.

BOILER CONSTRUCTION.

All boilermakers who wish to get the best work on locomotive boiler construction can secure through the RAILWAY JOURNAL a copy of Frank B. Kleinhans' new book on "Boiler Constructions," a book of over 430 pages, handsomely illustrated and cloth bound. The book contains 334 clear cuts and five pages of large plates, illustrating different forms of locomotive boilers. There are 75 pages devoted to laying out and about 50 pages devoted to tables, rules and other valuable data. We have arranged to secure this book for our readers at cost—$3.00—which will be sent postage paid. It is the most complete and up-to-date work of its kind we have been able to secure for our readers, and we think it is about what every aspiring boilermaker needs. A boilermaker of forty years' experience writes: "I would not take $10 for my copy if I could not replace it." We also take orders for the

WALSHAERT LOCOMOTIVE VALVE GEAR.

This valuable book of 150 pages, finely illustrated, should be in the hands of every railway engineer, fireman and mechanic as well as foreman. It is devoted exclusively to the above system of valve motion. The book contains information that is put forth so simply that anyone can easily understand it. Its illustrations and diagrams alone are worth more than the price, $1.50

STEEL GONDOLAS FOR C., B. & Q.

The accompanying illustrations of the 100,000 pound capacity steel drop bottom gondolas afford an idea of the excellent equipment being constructed for the Burlington road by the Bettendorf Axle Company of Davenport, Iowa, who have just built 1,000 such cars for the Burlington.

The car presents a decidedly handsome appearance, and is worthy of more than passing note, because of some rather peculiar features of construction, and the combination, by the builders, of various methods of present-day design to secure a light, yet exceedingly strong, type of construction. It is an unusually open type, as can be seen in the cuts, which renders inspection easy. The majority of the different members are of standard rolled sections, easy to obtain and easy to apply. The side and end sheet constructions are radical departures from the generally accepted style of side girders and ends. Instead of the ordinary top chord angles, the side coping is formed by rolling the sheet at the top into a long tube, two and a quarter inches inside diameter. The end sheet has a heavier top roll and is additionally stiffened by a heavy corrugation which forms an end construction capable of withstanding the heavy shocks of the coal service.

The efforts of car designers during the past few years have been along two distinct lines; one where the entire load is carried upon deep, fish-bellied, center sills, while the side sheets of the cars are not considered as having any carrying value at all; the other theory where the reverse is considered and the center sills, usually light channels, simply act as columns to absorb the buffing strain. The Bettendorf Axle Company have produced in their design, a car which combines the essentials of the two

INSIDE VIEW OF STEEL GONDOLA.

NEW STEEL GONDOLA, BUILT FOR THE BURLINGTON

theories, that is, to allow the sides and the center sill to carry their respective loads, yet unifying the carrying power of all the members, which results in a design in which no one part is unduly stressed or requires an abnormal section to gain the necessary strength.

The general dimensions of the car are 40 feet long inside, 9 feet 6 inches wide inside, 51 inches in depth inside. The side sheet is of ¼-inch steel, shaped at the bottom with a wide sloping flange, which does not pocket any material when the car is dumped. Each side is made up of two sheets, spliced at the center by center stake and a heavy splice plate. The sheet is stiffened by seven stakes to a side, made of pressed steel. Each stake is riveted to the end of a cross sill, for a length of 10 inches, forming a strong resistance against side thrusts, a feature not commonly found. The illustrations clearly show the coping roll and other details which make the entire side present a neat and compact appearance.

The end sheet is made with a deep, heavy, top roll, and flanged at the corners to make a connection for the side sheets. It is further stiffened by a large star-shaped corrugation, 3 inches deep. The sheet is made of ¼-inch steel and is cold shaped during the different operations. The end sill is riveted to the sheet and is made of a 10 inch channel, the top flange of which is bent upward to lay flush against the end sheet, and the web is shaped into a long, straight, corrugation across the car. Poling pockets are also pressed into the channel web. The end sill is shaped in one operation with the metal cold, the severity of treatment given it insuring only the best grade of open hearth steel being used.

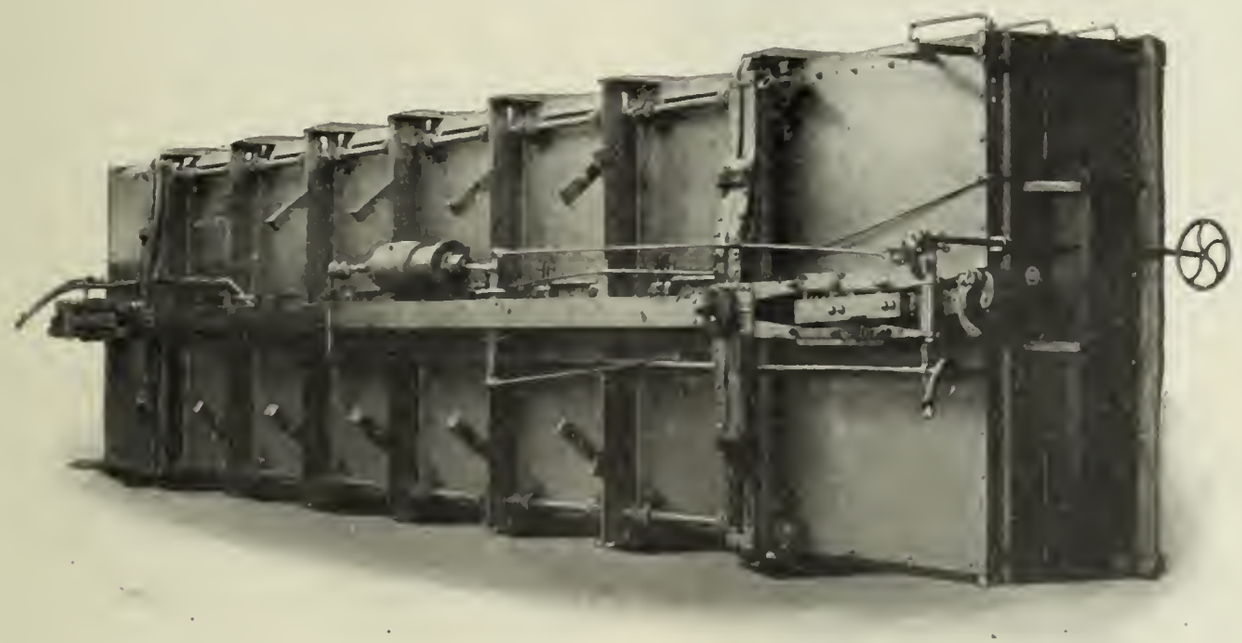
The characteristic feature of this car is the single center sill which is designed, should concentrated weights be hauled, to carry the entire load, or when the car is loaded uniformly, to carry only 58 per cent of it. The center sill is made up of three distinct members; a 24-inch 80-pound I-beam, an 18-inch cover plate, and Bettendorf cast steel center sill ends or draft sills. The I-beam center sill extends between the bolsters and the web is cut out at each end and the bottom flange thrown up reducing the beam's depth at ends from 24 inches to 15 3-16 inches. The Bettendorf center sill ends are cast steel with draft lugs cast integral and are arranged for Miner tandem draft gear,

but they can be designed, however, to accommodate any draft gear desired. The center sill ends extend from the striking plate to back of the body bolsters where they are riveted to the center sill I-beam with heavy rivets. The body bolster is continuous and passes through the center sill ends and is securely riveted to them, both top and bottom. The cover plate runs the entire length of the car. The drop door hinge butts are riveted to cover plate and web of I-beam center sill. Permanent floor plates of 5-16-inch steel extend from the body bolster to the end sill, and are riveted to the side sheets with the center sill compression plate hiding the joint of the plates. Five 10-inch I-beams and two Bettendorf body bolsters constitute the cross sills. With the usual run of construction, heavy transoms and light floor-beams are used. However, in this design of car, each needle-beam has been made strong enough to transmit its load to the center sill, and because of the beam being continuous from side to side of the car, it does not depend upon rivets to properly perform its duty. The top flange of the I-beam is set down at the center which allows the top of the needle-beam to come flush with the floor level without making a cut in the top flange of the center sill.

The load is dumped by means of 12 drop doors, operated by winding chains and a 2¼-inch diameter shaft. The doors are made of 5-16 inch steel, flanged and secured to the center sills by malleable iron hinges. Steel hangers riveted to the needle-beams catch the doors and take away all strain from the winding chains when the load is dumped. The dumping mechanism is of the creeping shaft device and is protected from injury by the bottom flange of side sheets.

The trucks are the Bettendorf standard cast steel side frame 50-ton type. The truck has the journal boxes cast integral with the side frames, and dispenses with the old style arch bars, columns, bolts, etc. The cast steel side frame reduces the weight of trucks per car about 1,000 pounds and eliminates nearly 200 pieces per set of trucks. The weight of the car is only 37,800 pounds and of trucks alone, 14,260 pounds. The light weight runs about 2,000 to 3,000 pounds lighter than the usual car of like dimensions. The openness and simplicity of its construction makes inspection a quick and thorough task. The fact that there are but a few hot pressed shapes, facilitates repairs at small division points, and as the various members have not their coating of iron oxide destroyed by reheating, it helps them to resist the corrosive action of coal or moisture. The construction of the center sill gives it power to resist high buffing strains and the equality of design and distribution of stresses enable the car to withstand the heaviest kind of service.

A car of this design, also an all-steel box car, were on exhibition on the tracks, at the M. C. B. and M. M. conventions in June.



BURLINGTON STEEL GONDOLA, BOTTOM VIEW.

FOREIGN TRADE OPPORTUNITIES.

The Bureau of Manufactures at Washington, D. C., furnishes the RAILWAY JOURNAL with the following information:

Consul Talbot J. Albert sends the report from Brunswick that a beginning with electrifying of some of the railroads in Prussia will soon be undertaken.

An American consular officer in a city of Southern Europe reports that a local business man desires to correspond with American firms dealing in metal lathes, scientific instruments, electrical machines and appurtenances of electric tramways.

The representative of a foreign government is about to visit the United States to study the weed-burning machines in use on American railways, and also to investigate new machinery of railway supply houses. Further information may be secured from the Bureau of Manufactures.

One of the American consular officers in the Far East has transmitted copies of tenders and specifications, and drawings of rolling stock to be supplied to the state railways of one of the countries in that region. Tenders will be received for this material up to October 30, 1908.

A New York firm with London offices advises the Bureau of Manufactures that it would like to hear from American firms handling the following goods, with a view to securing the agencies for Great Britain for the sale of the same: Linseed oil, cotton oil, lard oil, fish oil, turpentine, rosin and rosin oil, varnish, pitches, and lubricating oils of all descriptions.

A movement has been started in an Asiatic country for the purpose of installing an electric tramway between two points, covering a distance of about 5 miles, to connect with a steam railway that will extend a distance of about 7 miles. The American consul in that region reports that surveys have been made, and suggests that interested parties correspond with a native capitalist who will furnish the funds necessary for the construction of the proposed lines.

Consul-General Robert P. Skinner, of Marseilles, is in receipt of an inquiry from an American firm of locomotive builders in regard to the outlook for the sale of their engines in France, to which he replies: "I see no immediate probability of securing contracts in this country, but suggest that attention be turned to Tunis, where the railroad system is undergoing radical reconstruction and important extension. It would probably be worth the while of American builders to enter into direct correspondence on this subject with our consular agent, Auguste J. Proux, with a view to being represented in Tunis at the proper time."

An American consul reports that a business house in Russia desires to correspond with American firms manufacturing lathes for working up material without heating, sheet metal cutters, hole punching machines, punching many holes simultaneously, with

several eccentrics, bending and folding plants, pressing and stamping machinery, nut and bolt making machines for both hot and cold metals, and all classes of artisans' hand tools.

The possibilities of the trade in steel building materials in Brazil have appealed to a number of the largest American manufacturers of such materials, and there is a well-defined movement to get into the trade in Brazil and South America generally. The nature of inquiries made, however, indicates that there is no proper appreciation of the position of this trade in Brazil at the present time, nor is it likely that it will reach the expectations of many American exporters for some time.

Bids will be received until July 6, 1908, by the Isthmian Canal Commission, Washington, D. C., for the supply of steel, iron, culvert pipe, condenser tubes, dredge dipper, steel rails, angle bars, tie plates, track bolts and spikes, frogs, switches, switch stands, nut locks, machine and key bolts, nuts, rivets, hasps and staples, spring cotters, tacks, wrought washers, wire and rubber sleeves, hose, motor car, electric motors, surrey, delivery wagon, harness, steel trolleys, pump governors, steam gauges, oil cans, melting ladles, rail saws, picks, forges, lathe chuck, tinner's shears, chisels, carpenter's clamps, fids, platform scales, hinges, shower heads, electrical material, wire, friction tape, belt lacing, leather, cotton duck, twine, scrubbing brushes, window shades, bread cutters, sea-coal facing, boiler compound, sal ammoniac, lye, flour, fire brick, cross-ties, etc. (Circular No. 448.)

JOHN W. FOGG.

The master mechanic of the Chicago Terminal Transfer Railroad at Chicago, Mr. John W. Fogg, is a native of England, but moved to Canada when a small boy and served his apprenticeship on the Grand Trunk road. In 1885 he came to the United States and served as a locomotive engineer on the Wisconsin Central and the Chicago Terminal Transfer roads. Later, Mr.

JOHN W. FOGG.

Fogg became traveling engineer, and in 1901 was made master mechanic of the latter road, with office at Chicago. Mr. Fogg is an active worker in the Master Mechanics' Association and is invariably an attendant at the conventions. His mechanical ability is recognized as being of the highest order. His ambitious disposition prompts him to be alert for the best new ideas in railway mechanism.

FRAMES WELDED WITH OIL.

The Pennsylvania shops at Columbus, O., have been using the oil method of welding frames. The RAILWAY JOURNAL has been informed that within the last year over 100 locomotive frames have been thus welded with excellent results. They do not take a frame off the engine now if they can avoid it, says Master Smith J. S. Sullivan.

LIST OF EXHIBITORS.

The following is the list of exhibitors at the Atlantic City conventions in June:

A. B. C. Bearing Corporation, Richmond, Va.
Adams & Westlake Co., Chicago.
Ahlberg Car Truck Co., Chicago.
American Balance Valve Co., Jersey Shore, Pa.
American Blower Co., Detroit.
American Brake Shoe & Foundry Co., Mahwah, N. J.
American Car & Foundry Co., St. Louis.
American Engineer & Railroad Journal, New York.
American-LaFrance Fire Eng. Co., New York.
American Locomotive Co., New York.
American Mason Safety Tread Co., Boston.
American Multigraph Sales Co., Cleveland, O.
American Steam Gauge & Valve Mfg. Co., Boston.
American Steel Foundries, Chicago.
American Vanadium Co., Pittsburg.
Anchor Packing Co., Philadelphia.
Armstrong Bros. Tool Co., Chicago.
Asbestos Protected Metal Co., Canton, Mass.
Baldwin Locomotive Works, Philadelphia.
Bardons & Oliver, Cleveland, O.
Barnett Equipment Co., New York.
Beaudry & Co., Boston.
Chas. H. Besley & Co., Chicago.
Bettendorf Axle Co., Davenport, Ia., Chicago.
Bickford Drill & Tool Co., Cincinnati.
Bird Archer Co., New York.
Bliss Electric Car Lighting Co., Milwaukee.
S. F. Bowser & Co., Ft. Wayne, Ind.
Brewer Bros. Co., Philadelphia.
J. G. Brill Co., Philadelphia.
Brown & Sharp Mfg. Co., Providence, R. I.
Buckeye Steel Castings Co., Columbus, O.
Buffalo Brake Beam Co., New York.
Burroughs Adding Machine Co., Detroit.
Bush & McCormick, Columbus, O.
Butler Draw Bar Attachment Co., Cleveland.
Calculagraph Co., New York.
Car Lubricator Co., Utica, N. Y.
Cardwell Mfg. Co., Chicago.
Phillip Carey Mfg. Co., Cincinnati.
Carborundum Co., Niagara Falls, N. Y.
Celfor Tool Co., Chicago.
L. C. Chase & Co., Boston.
Chicago Car Heating Co., Chicago.
Chicago Pneumatic Tool Co., Chicago.
Chicago Railway Equipment Co., Chicago.
Cincinnati Machine Tool Co., Cincinnati, O.
Cincinnati Milling Machine Co., Cincinnati, O.
Cincinnati Planer Co., Cincinnati, O.
A. C. Clark & Co., Chicago.
Cleveland Car Specialty Co., Cleveland.
Coe Brass Mfg. Co., Torrington, Conn.
W. H. Coe Mfg. Co., Providence, R. I.
Commercial Acetylene Co., New York.
Commonwealth Steel Co., St. Louis.
Consolidated Car Heating Co., New York.
Consolidated Ry. Elect. Light & Equip. Co., New York.
Crosby Steam Gauge & Valve Co., Boston.
Curtain Supply Co., Chicago.
Damascus Brake Beam Co., Cleveland.
John Davis Co., Chicago.
Davis Solid Truss Brake Beam Co., Wilmington, Del.
Dearborn Drug & Chemical Works, Chicago.
Detroit Hoist & Machine Co., Detroit.
Detroit Lubricator Co., Detroit.
Diamond Machine Co., Providence, R. I.
Paul Dickinson, Inc., Chicago.
T. C. Dill Machine Co., Philadelphia.
Jos. Dixon Crucible Co., Jersey City, N. J.
Dressel Ry. Lamp Works, New York.
G. Drouve Co., Bridgeport, Conn.
Duff Mfg. Co., Pittsburg.
Duner Co., Chicago.
O. M. Edwards Co., Syracuse, N. Y.
Electric Ry. Journal, New York.
Electric Storage Battery Co., Philadelphia.
Enterprise Ry. Equip. Co., Chicago.
Evans-Almirall & Co., New York.
Falls Hollow Staybolt Co., Cuyahoga Falls, O.
Farlow Draft Gear Co., Baltimore and Chicago.
Flannery Bolt Co., Pittsburg.
Flexible Compound Co., Philadelphia.
Forsyth Bros. Co., Chicago.
The W. H. Foster Co., New York.
France Packing Co., Tacony, Pa.
Franklin Mfg. Co., Franklin, Pa.
Franklin Railway Supply Co., Franklin, Pa.
Frost Railway Supply Co., Detroit, Mich.
Galena-Signal Oil Co., Franklin, Pa.
Garlock Packing Co., Palmyra, N. Y.
Genl. Compressed Air & Vacuum Mach. Co., St. Louis, Mo.
General Electric Co., Schenectady, N. Y.
General Ry. Supply Co., Chicago.
Gisholt Machine Co., Madison, Wis.
Gold Car Heating & Lighting Co., New York.
Goldschmidt Thermit Co., New York.
Goodwin Car Co., New York.
Gould Coupler Co., New York.
Greene, Tweed & Co., New York.
Grip Nut Co., Chicago.
Hale & Kilburn Mfg. Co., Philadelphia.
Hanlon & Wilson, Wilkinsboro, Pa.
Edw. Harrington, Son & Co., Philadelphia.
Geo. L. Harvey, Chicago.

Heywood Bros. & Wakefield Co., Wakefield, Mass.
Home Rubber Co., Trenton, Mass.
Hunt Spiller Mfg. Corporation, Boston.
Illinois Malleable Iron Co., Chicago.
Independent Pneumatic Tool Co., Chicago.
Invisible Roll Screen Co., Brooklyn, N. Y.
Janney Car Coupler Co., Alexandria, Va.
Jenkins Bros., New York.
Johns-Manville Co., New York.
Sinclair J. Johnson, New York.
P. S. Justice & Co., Philadelphia.
Kelly Arnold Mfg. Co., Wilkesbarre, Pa.
Keystone Drop Forge Works, Chester, Pa.
Lackawanna Steel Co., Buffalo, N. Y.
Lancaster Machine & Knife Works, Lancaster, N. J.
Landis Tool Co., Waynesboro, Pa.
Latrobe Steel & Coupler Co., Philadelphia.
Lawrence Bronze Co., Pittsburg.
Locomotive Appliance Co., Chicago.
Lodge & Shipley Mach. Tool Co., Cincinnati.
Love Brake Shoe Co., Chicago.
Lucas Machine Tool Co., Cleveland, O.
David Lupton's Sons Co., Philadelphia.
McConway & Torley Co., Pittsburg.
McCord & Co., Chicago.
J. Gibson McIlvain & Co., Philadelphia.
Marshall & Hurschart Machinery Co., Chicago.
Mason Regulator Co., Boston.
Mass. Mohair Plush Co., Boston.
Michigan Lubricator Co., Detroit, Mich.
Modoc Soap Co., Philadelphia.
Mummert, Wolf & Dixon Co., Hanover, Pa.
S. W. Murray, Milton, Pa.
Nathan Mfg. Co., New York.
National Acme Mfg. Co., Cleveland.
National Aniline & Chemical Co., Philadelphia.
National Boiler Washing Co., Chicago.
National Car Coupler Co., Chicago.
National Lock Washer Co., Newark, N. J.
National Malleable Castings Co., Cleveland, O.
National Roofing Co., Tonawanda, N. Y.
National Tube Co., Pittsburg.
New York Air Brake Co., New York.
Norton Grinding Co., Worcester, Mass.
A. O. Norton, Inc., Boston.
Noscalon Co., New York.
Oil Well Supply Co., Pittsburg.
Pantasote Co., New York.
Parker Car Heating Co., London, Ont.
Parkersburg Iron Co., Parkersburg, Pa.
Perry Side Bearing Co., Chicago.
Phoenix Iron Works Co., Meadville, Pa.
Pilliod Co., Chicago.
Pittsburg Automatic Vise & Tool Co., Pittsburg.
Pittsburg Equipment Co., Pittsburg.
Pocket List of Ry. Officials, New York.
Railway Age Gazette, New York.
Railway Journal, Chicago.
Railway Master Mechanic, Chicago.
Railway List Co., Chicago.
Railway & Engineering Review, Chicago.
Railway Materials Co., Chicago.
Raiston Steel Car Co., Columbus, O.
Resteln Clement Co., Philadelphia.
Ritter Folding Door Co., Cincinnati.
Roberts & Schaefer Co., Chicago.
Robinson Co., Boston.
Rubberset Brush Co., Newark, N. J.
Rudd Mfg. Co., Pittsburg.
Russell, Burdsall & Ward Bolt & Nut Co., Pt. Chester, N. Y.
Rutherford Automatic Connector Co., Chicago.
Jos. T. Ryerson & Son, Chicago.
Safety Car Heating & Light Co., New York.
St. Louis Car Co., St. Louis.
George H. Sargent, Chicago.
Scullin-Gallagher Iron & Steel Co., St. Louis.
Wm. Sellers & Co., Philadelphia.
Wm. J. Smith Co., New Haven, Conn.
Sprague Electric Co., New York.
Springfield Machine Tool Co., Springfield, O.
Standard Car Truck Co., Chicago.
Standard Coupler Co., New York.
Standard Metal Mfg. Co., Chicago.
Standard Paint Co., New York.
Standard Steel Car Co., Pittsburg.
Sterling Steel Foundry Co., Pittsburg.
Stoever Foundry & Mfg. Co., Lebanon, Pa.
Storrs Mica Co., Owego, N. Y.
T. H. Symington Co., Baltimore, Md.
Tindell-Morris Co., Eddystone, Pa.
Trojan Car Coupler Co., New York.
H. B. Underwood & Co., Philadelphia.
Union Spring Mfg. Co., Pittsburg, Pa
U. S. Metal & Mfg. Co., New York.
Uwanta Wrench Co., Meadville, Pa.
W. T. Van Dorn Co., Chicago.
Ward Equipment Co., New York.
Watson Stillman Co., New York.
West Disinfecting Co., New York.
Western Ry. Equip. Co., St. Louis.
Western Tool & Mfg. Co., Springfield, O.
Westinghouse Air Brake Co., Pittsburg.
Wheel Truing Brake Shoe Co., Detroit.
White Enamel Refrig. Co., St. Paul, Minn.
Willard Storage Battery Co., Cleveland, O.
Wilmarth & Morman Co., Grand Rapids, Mich.
J. G. Wilson Mfg. Co., New York.
Wolff Truck Frame Co., Chicago.
Wright Wrench Co., Philadelphia.
Yale & Towne Mfg. Co., New York.

A. F. BRADFORD.

One of the conspicuous workers at the recent convention of the International Railway General Foremen's Association was Mr. A. F. Bradford, general foreman of the Big Four shops at Urbana, Ill. Mr. Bradford is a native of Illinois, having been born in Vermilion county in 1859. It was with the L. B. & W. Ry. at Urbana, that he first entered service. After working on the road in the train service a few years he went in the shops

A. F. BRADFORD.

to become a mechanic and has succeeded. He was made roundhouse foreman for the company at Indianapolis, which position he resigned to go with the old Atlantic & Pacific at Winslow, Ariz. Later he was made general foreman of the S. P. & P., at Prescott, Ariz. Quitting the latter position, he went to Ohio where he filled various positions until a few years ago when he returned to Urbana and accepted service with his old company, now the Big Four. In 1906 he was made general foreman of the shops at that point, which position he still holds.

MECHANICAL NOTES.

Early last month the Rock Island opened its new division shops at El Reno, Okla.

The International & Great Northern is figuring on ordering ten locomotives.

The Bolivia Railway has plans for three locomotives which will likely be built in this country.

On June 6, the Dickson Car Wheel Company of Houston, Tex., suffered a loss by fire of about $150,000.

Charles E. Wehr has been placed in charge of the new office of the H. W. Johns-Manville Company at Indianapolis.

The Standard Steel Car Company has contracts for building two thousand steel cars for the Pittsburg & Lake Erie.

The C. & A. ordered from the Baldwin Works recently five locomotives which are to be delivered this month.

The C., M. & St. P. is figuring on constructing 2,000 more freight cars soon for the Pacific Coast extension.

The Ft. Worth & Denver City will make shop improvements at Childress, Tex., to replace the buildings destroyed by fire in May.

D. E. Jackman of Pittsburg has joined the agency of E. S. Jackman & Co., Chicago. This company handle the Firth Sterling steel

Fairbanks, Morse & Co. announce their new general offices to be located at Wabash avenue and Eldridge place, Chicago, to which they welcome all their many friends.

Press reports from Monterey, Mexico, state that the National Lines will remove the shops from Laredo and from C. Porfirio Diaz to Monterey, where they are to be consolidated.

The Anchor Packing Company of Philadelphia has an office in Chicago in charge of C. W. Hadcock. E. C. Adams has the Detroit office and J. F. Edmonds the Pittsburg branch.

The Georgia Car Company of Atlanta, Ga., reopened its plant in June, after a close-down of three months. The company has orders booked for steady work for considerable time.

G. E. Ellis resigned as signal engineer of the Rock Island Lines on May 31, to become manager of installation of the Federal Signal Company, with headquarters at Albany, N. Y.

Mr. Seeley Dunn, formerly with the Illinois Central, has been chosen president of the International Car Company of New Orleans, La. The company will erect large works at that point to repair and rebuild cars, locomotives, etc.

The Ft. Worth & Denver City recently ordered eight consolidation freight engines and five switching engines. Contract was let late in May and engines are to be delivered within sixty days, so the RAILWAY JOURNAL has been informed.

The following officers were chosen by the Mt. Vernon Car Company of Mt. Vernon, Ill., at an election held June 9: President, W. C. Arthurs; vice-president, R. K. Weber; secretary-treasurer, D. P. Settlemire; superintendent, Frank Snyder.

President Underwood of the Erie Railroad issued instructions on June 4 that all the road's locomotive and car shops be placed on a ten-hour basis. It is the intention of the company to immediately begin repairing all equipment which has been idle by reason of lack of business.

"Having tried it, I recommend the following mode of keeping ice water for a long time in a common pitcher," says a writer in Woman's Home Companion for July. "Place between two sheets of thick brown paper a layer of cotton batting about half an inch in thickness; fasten the ends of the paper and batting together, forming a circle, then sew or paste a crown over one end, making a box the shape of a stovepipe hat minus the rim. Place this over an ordinary pitcher filled with ice water, making it deep enough to rest on the table so as to exclude the air, and you will be astonished to see the length of time that the ice will keep and the water remain cold after all the ice has melted."

Relative to the report circulated that the Union Pacific is using wireless electric power to operate a transfer truck at their shops, in reply to inquiry, Mr. W. R. McKeen, S. M. P. of the U. P., writes the RAILWAY JOURNAL as follows: "In regard to the matter of operating this truck by wireless, would say, that for experimental purposes this truck has been equipped with necessary receiving wires, and wireless waves have been used in connection with a wireless telegraph coherer for making and breaking the circuit between the batteries and the motor on the car, thus starting and stopping the car. This is the basis of the newspaper reports which have been sent out concerning the wireless truck."

CONSTRUCTION AND IMPROVEMENT.

The Boston & Albany is constructing the third track on the main line in Massachusetts.

The Burlington has arranged to construct a spur from Cheyenne, Wyo., to Ft. Russell, Wyo.

The Cotton Belt will expend about $500,000 on terminal improvements at Ft. Worth, Tex.

The Houston & Brazos Valley has plans for extensive track and wharf improvements at Velasco, Tex.

C. S. Cleave of Houston, Tex., is promoting the Port Arthur & Houston Short Line between Port Arthur and Houston.

R. M. Dudley has the contract for building an extension of the Paral & Durango from Mesade Sandia, about 12 miles.

With the exception of some bridge work and laying the rails, the Manzanillo branch of the Mexican Central has been completed.

Jas. W. English of Atlanta, Ga., is president of the Atlanta & Carolina, a proposed road to extend from Atlanta to Augusta, Ga., about 200 miles.

John W. Gates is interested in the proposed construction of the Pt. Arthur, Beaumont & Waco Air Line. His offices at present are at Beaumont, Tex.

The Tonopah & Tidewater Company propose to build an extension from Goldfield to Ely, Nev., 200 miles. F. M. Smith of Oakland, Cal., is president.

The management of the Southern Railway announce that they will soon resume work on double-tracking the main line between Washington and Charlotte, Va.

J. J. Hill is quoted as saying that the Great Northern is to be extended from Winnipeg, Man., west to Calgary and through Saskatchewan. The road is to build also from Fernie, B. C., to Calgary.

Consul Arthur J. Clare reports from Bridgetown that the Barbados Light Railway Company is preparing a petition to the Legislature of the island to enable it to build a new line from Bridgetown to the parish of St. Peter.

John B. Bright, of Vancouver, B. C., has the contract for building a portion of the 58-mile extension of the Canadian Pacific between Wellington, B. C., and Albernie. This company has completed a line between Toronto, Ont., and Sudbury.

The Texas Northern has been chartered in Texas to build from Groveton to Lufkin, Tex., 36 miles; offices to be at Groveton. Among the incorporators are: W. T. Loyce, D. J. Batchelder, R. C. Hitchcock, L. P. Atmar, J. C. Anderson, P. A. McCarthy, W. C. Trout, H. M. Garwood, Edwin B. Parker and C. R. Wharton.

It is stated by C. H. Bevington, vice-president and general manager of the Frio Valley Railroad, that construction will begin soon. The road will run from Leaky to Uvalde, Tex., a distance of 40 miles, and will be extended later on to a point on the Rio Grande border, an additional distance of about 150 miles. The company is backed by wealthy Chicago men, Martin Wolfe, of that city, being president.

Formal inauguration of through train service on the Cannanea, Rio Yaqui y Pacific Railroad between Guaymas and Culiacan, a distance of 365 miles, will take place September 16, if present plans do not miscarry. A new route for the Guadalajara-Tepic division through the Sierra Madras has been located. It is estimated by the engineers that the 15 miles of construction work through the mountains will cost an average of $125,000 gold per mile.

According to the press dispatches from Winnipeg, the Dominion government has decided to help the Canadian Northern to complete its line to Hudson Bay by giving it a cash bonus of $800,000 a mile and guaranteeing a portion of the bonds of the road from the present terminus, The Pas, Keewatin, to Fort Churchill, on Hudson Bay, 480 miles. In return, the government is to control rates and secure trackage rights for other railroads over the line. The road is to be completed in two years.

RAILROAD FUTURE IN QUEBEC.

James G. Scott, general manager of the Quebec & Lake St. John, is quoted as follows: "To give Quebec complete control of the back country which belongs to her there remains still another great work to be accomplished, and this the rising generation will have to see to. I refer to the opening up of the James Bay territory. There is in that territory a vast area comprising 70,000 square miles, or 45,000,000 acres of land, absolutely untouched, belonging to the Province of Quebec. This great region abounds in spruce forests, in water powers, in arable lands, in lignite coal and in minerals, and it has a climate quite as good as the Lake St. John district and very similar to that of Manitoba. A railroad from Roberval to James Bay would pass exactly through the center of this great territory, and would touch at half way the valuable mining district of Chibougamo, where there are great deposits of asbestos, copper, gold and iron.

F. C. DILLARD.

The subject of this article, Honorable F. C. Dillard, is Interstate Commerce Attorney for the Harriman System of railways, with headquarters in Chicago. Whatever ideas a public unacquainted with Mr. Harriman may imagine represent him, a most favorable impression of his lieutenants must be created by personal contact with the courteous and modest lawyer who goes before the authorities at Washington. While Mr. Dillard is frequently spoken of as "Judge," he has never held office and has never run for it. He has simply practiced law.

A native of Alabama he was educated at Auburn and graduated from the Polytechnic Institute situated there. At the age of 17 years he began to teach school to complete his education and for four years thereafter his time was divided between teaching school and attending college. After being admitted to the bar he located in Sherman, Texas, remaining there until he came to Chicago in July, 1907. His general legal work embraced much corporate practice, including representing the Houston & Texas Central Railway, a Harriman line. Ten years since he declined the General Attorneyship of one of Texas' largest roads to continue general law practice, though this would have made him the company's chief law officer in the state. The position of Dean of the Law Faculty of one of the leading universities in the Southwest was declined for the same reason, the pecuniary loss being greater than he could afford.

"Judge" Dillard was president of the Texas Bar Association for one term. The rules allow no president to stand for re-election. He was also for some years member for Texas of the General Council of the American Bar Association. While his home was in Texas he was a director of the St. Louis, San Francisco & Texas Railroad, and is at the present time a director in the Merchants & Planters National Bank of Sherman, one of the largest of the state's incorporated banks, as well as of some other corporations.

We have here in brief the history of a man now at the head of that part of a corporation especially involved in the operation of Federal law. Personal contact with him, a chance to listen to his thoughtful and orderly estimate of a citizen's obligations in botlt a private and public capacity give no suspicions of the Vampire nor are any of the tentacles of an Octopus disclosed. Genial in manner, soft spoken in his utterances, but firm in his convictions, association with him establishes confidence in the integrity of his purposes. It is a belief of the writer that no policy clearly apparent to him as a serious disaster to the public weal will have even his silent approval. Broader in mental scope than many men, and as broad as any, his duty as more binding because he knows the law, I am quite sure will always be preeminent, when placed beside opportunity for a success that would stultify the cleanness of the character he has built up. W. B. B.

A. E. Ramsay of the First National Bank of Muskogee, Okla., has been appointed receiver of the Oklahoma Central Railroad and the Canadian Construction Company, which built the O. C. The appointment is based on the application of heavy creditors and also of the holders of $2,900,000 of the $3,000,000 bonds of the railroad company. The creditors and bond holders desire a Federal receiver on the ground that the Federal receiver's certificates may be sold to provide funds to make the necessary improvements to put the road on a paying basis.

TRAFFIC AND FINANCE.

The Hawaiian-American Steamship Line has established an office at Mexico City, with J. E. Cates in charge.

The C., M. & St. P. is to inaugurate train service into Butte, Mont., this month. The roadbed is graded some distance beyond Butte.

George Gould says that the earnings of the Western Union indicate that business of the country is increasing and that conditions are more encouraging.

Messrs. Frederick Bond of Chicago, and George Wallace of Paducah, Ky., are interested in a new company organized to control the Kentucky Midland.

The Louisiana railroad commission has ruled that railroads should give 96 hours free time for the unloading of rice in carload lots when received at New Orleans.

The Mallory Steamship line now operates steamships between New York and Mobile direct, stopping at Tampa, Fla. The company proposes to have sailings weekly.

President Ripley of the Santa Fe is quoted as saying that there is not likely to be any general reduction of wages soon. Every railway employe hopes that he is correct.

The attorney general of Massachusetts has taken action to prevent the New York, New Haven & Hartford from owning stock in trolley lines in the western part of the state.

The railroads in the flooded states are again operating on schedule time. Deep waters mean expensive repairs and delayed service. In this line the roads have had their share the past two months.

The Chicago Transportation Association held its June meeting at Lake Villa, Ill., June 28, in the form of a picnic. The July meeting will likely be held on July 13 on the steamer Theodore Roosevelt, with a trip on the lake.

The Pend d'Oreille Navigation Company has established a boat line between Newport, Wash., and Ione, 110 miles, which operates in connection with the Idaho & Northern Washington Railroad. The boat "Ione" is the first to be put in commission.

Vice-President Mohler of the Union Pacific suggests that the river floods be impounded into large artificial lakes and then used later in the season for irrigating purposes, if necessary. His suggestion affords study for engineers that might be turned to valuable account.

The Interstate Commerce Commission last month issued the following order relative to issuing of railroad passes: Many abuses in the issuance and use of passes have been discovered by the commission, which it is desired to correct, and to this end, and because of the misinterpretation of the law by carriers generally, the commission at this time makes announcement that it will recommend the indictment and prosecution of all carriers and persons issuing passes to, or allowing the use of passes by any persons not included within the designated classes to whom free transportation may be given by carriers.

No doubt the public will draw a deep breath of relief on being assured that freight rates are not to be increased for the present. The report circulated a few weeks ago that there would be a general increase of freight rates, created a storm of protests from almost every quarter. Last month the executive heads of some of the leading lines met in New York and it was decided, at that meeting, that it would be undesirable and impracticable to make any general advance at present. It was the general opinion that the proposed increase of rates at present would tend to create freight stagnation rather than stimulate freight movement. The consensus of opinion of the railway officials is that business is now increasing and that every encouragement should be given to help conditions and not retard them. It was also decided at the above meeting that there would be no decrease in wages at present either, which announcement should be received with popular sentiment by the public as well as by the worthy railway wage-earner.

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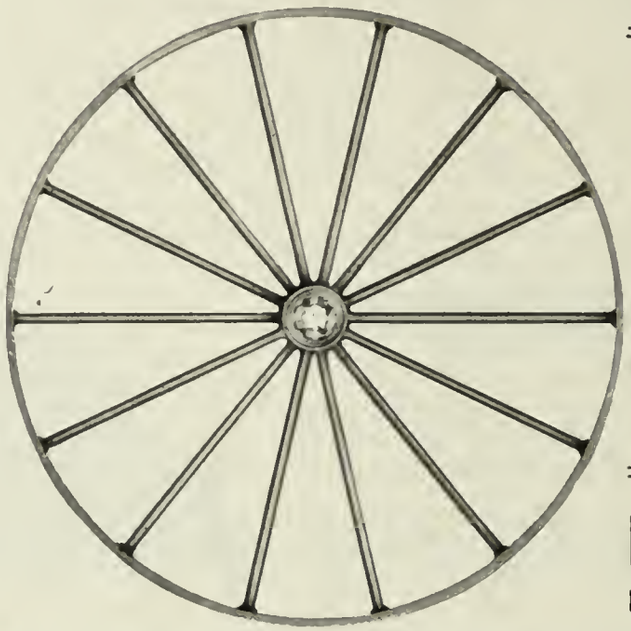

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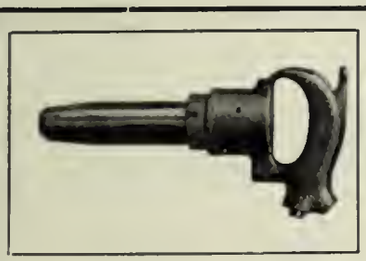

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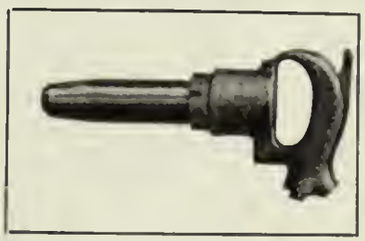

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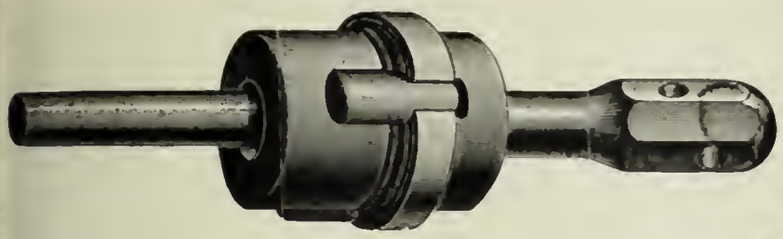

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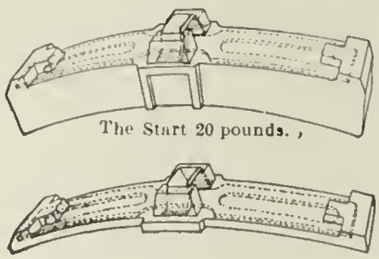

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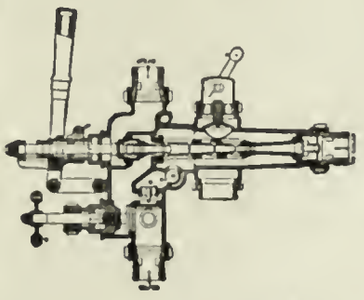

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Address all communications to
RAILWAY JOURNAL, 506 Royal Insurance Bldg., Chicago, Ill.
'Phone, Harrison 1006.

Entered as Second-Class Matter October 22, 1906, at the Post Office at Chicago, Illinois, under Act of March 3, 1879

W. E. FAITHORN . . . . . Business Manager
E. C. COOK . . . . . Managing Editor

SUBSCRIPTION PRICE, One Dollar per Year, Ten Cents per Copy

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DUTIES AND RESPONSIBILITIES OF TRAFFIC OFFICIALS.

Mr. A. H. Gower, freight traffic manager of the Rock Island lines, delivered an able address before the recent convention of the National Association of Freight Traffic Agents at Put-in-Bay, in which he gave some timely advice to the young freight officials relative to their duties and responsibilities. He divided his address under several heads, namely: "Organization." "Personnel of the Men Themselves," "Their Relations to Each Other," "Their Relations to Their Companies," "Their Standing and that of Their Companies with the Shipping and Traveling Public."

As to the first subject, Mr. Gower said that "the foundation of success in any large enterprise is organization." If a man is not properly supported failure is sure to follow, as no one can rely on his own individual efforts, no matter what may be his ability or experience. He stated that "if the traveling agent, the solicitor or the office force are not interested in their work; if they do not consider that the company they are working for is their company, the business their business, its success or failure their own, the organization is not what it should be."

RELATIONS OF THE RAILROAD AND THE PUBLIC.

Relative to the public's recent attitude to the railroads, adverse legislation, etc., Mr. Gower said in part:

The great danger that confronts us and which brings with it many serious and difficult problems for us to solve, is the attitude of the public towards all corporations and railroad corporations in particular. While the public admit that the prosperity of the country depends largely upon the prosperity of the railroads, yet during the last few years we have witnessed the most aggressive action on the part of the people, either through state or interstate legislation, against railroads that the world has ever seen, much of this legislation being most radical, much of it unjust and *all of it* having the aim and effect of reducing the revenue of the railroads and increasing their expenses. We have been haled before courts and commissions to defend almost our very existence. We cannot console ourselves with the thought that this action emanates entirely from the politician. We know that as a rule the public are back of this movement and have supported it by voice and through the public press. While undoubtedly men in politics have planted the seeds, which have blossomed into popular clamor for legislation, the fact still remains they found the public mind fallow, and *herein lies the clear, important and pressing duty of the traffic department* of railroads, and particularly for you gentlemen, who represent these departments in the field. You are the men who live in daily contact with the people, the business people, the people who think and make their thoughts felt at the polls, on the witness stand and through the press. These are the men whom we must take into our confidence; confer with them freely and often, and make them see with us, that our interests are identical and that there are two sides to every question or problem which perplexes them, just as much as it perplexes us.

We should all realize that in the long run, the prosperity of a railway depends upon the prosperity of the communities served by it. I think that railway officials, practically without exception, do realize this, but the public must know we realize it and that we are striving to the best of our ability to carry out the policies that will advance the general welfare. I believe there are great opportunities for the traffic men of this country to carry on a campaign of education, that in the course of a few years will make such a condition of hostility to railroads as has prevailed in the past, an impossibility. I cannot help feeling, notwithstanding all that has been said with reference to the financial operations in connection with railroads, that the real seat of the trouble is back of that and grows out of the belief on the part of the people at large, especially the people with whom we do not come directly in contact, and yet who form a large part of the number that sit on our juries and who make our laws, that the railroads are in business solely for what they can get out of it, exacting the "pound of flesh" in every instance, without regard for the laws of God or man,

with no consideration for their employes or the proper rights of the people. You and I know this is not true, and also know that this feeling does not exist in the minds of the majority of business men with whom we come in contact from day to day, and with whom we are able to discuss and dispose of the many vexatious questions that constantly arise. The trouble is, we meet and get to know personally or not in the right way so few of the people with whom we do business, and practically none of those with whom we do not, that the problem is a difficult one and the solution of it appears to rest more with you and your men and the local agents of the line than it does with the general officers.

TAKE PUBLIC INTO OUR CONFIDENCE.

Some of the feeling against us is caused by our sins both of commission and omission. We have done many things that we should not have done and left undone many of the things we should have done, but after all is said I think the most serious thing is the fact that whether because of other business, thoughtlessness or failure to realize the importance of it, we have failed to defend ourselves and our employes when attacked; in other words, we have not taken the people into our confidence and have failed to take time to explain our side of the case to them, and here is where personal equation comes in.

The history of nations is largely a history of individuals. The history of England, prior to the revolution, is a history of its kings and queens. Later, when a constitutional government became a fact rather than a theory, the history of that country is simply a biography of its statesmen and public men. So, in this country, the history of the revolutionary days can be told in the life of Washington and the history of slavery in the life of Lincoln. So the history of the railroads of this country will be written in the lives and achievements of the men who represent them—what we are, so will the company we represent appear to be, and probably is, to those we do business with. So then it is up to us to appreciate that responsibility and see to it that our dealings with out patrons are fair, open and impartial and that we not only represent our company personally but that we truly represent its policy officially.

Mr. Gower spoke of the importance also of being prompt in handling claims, as ill feeling on the part of the shipping public has been due to the manner in which claims have been handled. He suggests that doubtful claims, or those where the responsibility is divided, can be settled more economically and satisfactorily if handled promptly than if delayed. Here is where good results come from co-operation between the company's outside representatives and the claim department. Referring to the former methods of securing traffic, Mr. Gower stated that "the methods which were once considered natural and necessary are now considered obsolete, immoral and harmful both to carrier and shippers," and believes that the old methods have passed away, never to return. In other words, rebating belongs only in the past. He paid high tribute to the National Association of Freight Traffic Agents and stated that such organizations are important factors in bringing about beneficial results. In his closing comments, Mr. Gower gave the following advice:

In conclusion, we must not overlook the personal equation that enters into all business propositions, and while we cannot all be at the top, we can all try to get as near to it as possible.

I heard a quotation some time ago that expresses it pretty well:

"The have-beens they are many
The would-be's more by far;
The going-to-be's are legion
But how few are those-that-are."

Let us all try to be in the class of those last mentioned—the men who *do* things. I am very much interested in your Association and its work. Such associations have a cumulative influence for good and I am quite sure this opinion is shared by all the officers of the different companies you represent. I wish you continued success and prosperity, both as an association and individually.

BUILDING THE RATON TUNNELS.

BY JOS WEIDEL, ASST ENG., SANTA FE RY.

When, in the latter seventies, the Santa Fe was building its line southward from the foothills of the Rocky Mountains in eastern Colorado to the high table lands of New Mexico, it found that a spur of the Taos range had to be crossed between Trinidad in Colorado and Raton in New Mexico. Both of these towns were on the famous Santa Fe Trail, along which was carried the overland traffic between the Missouri river and the capital of New Mexico. The distance between these two towns is twenty-three miles by rail, and the railway follows the old trail so closely that the latter can be seen from the car window almost the entire distance.

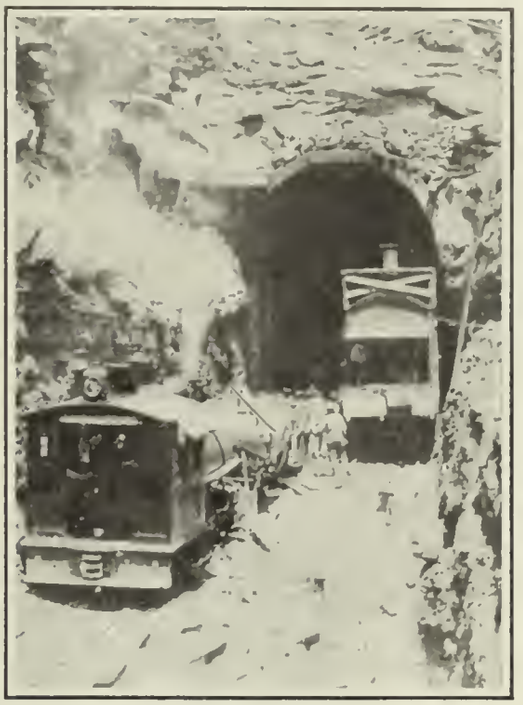
Both the trail and the railway cross the mountain range at Raton Pass at an elevation of about 7,800 feet above sea level. The pass is just south of the Colorado state line, and the railway has used a tunnel here for the last thirty years. The old tunnel and the line across the Raton Mountains were located by Engineer W. R. Morley in the latter seventies. The contractors who built this tunnel were Mallory, Fitzgerald & Flynn. Work was begun in December, 1878, and finished in August, 1879. While the old tunnel was under construction a switchback was used in crossing the range. This remained in service until the completion of the old tunnel in 1879. The methods of tunnel building were then comparatively primitive. Instead of compressed air for drilling the blast holes the work was all done by hand. The explosives in common use were the different forms of black powder, instead of dynamite, which had only been recently invented by Alfred Nobel. The length of the old tunnel is 2,037 feet, and the clear height above the top of the rail is 18½ feet, while its width is 14 feet. The grade is 2 per cent, and only about one-half of the tunnel is lined with timbers. There are no shafts in it. The formation through which it was cut consists of soft sandstone, shale and some coal. As is well known, the grades approaching the old tunnel are among some of the steepest (184.8 feet per mile) used anywhere in the United States on a standard gauge road, and they have compelled the company to maintain an expensive helper and pusher service between Trinidad and Raton. Owing to the slow rate at which traffic moves over these mountain grades it was known years ago that the mountain would have to be double tracked. Between 1900 and 1906 the entire distance between the two towns, with the exception of the tunnel section, was laid with a second track. Constantly growing traffic after the panic of 1893 showed that at no distant time a second track would have to be provided through the tunnel section also.

The necessity for extensive repairs to the old tunnel, as well as on account of the small cross section limiting the size of many loads, taken in connection with the press of constantly increasing business, finally led the company's management to decide upon a new tunnel. As soon as this decision was reached steps were taken to determine upon the most feasible location. A considerable number of surveys were made to find, if possible, a more suitable site than that occupied by the old tunnel. As long ago as 1900 surveys were made along different routes. Some of these surveys contemplated tunnels considerably over a mile in length, but it was finally decided to follow the old line and to adjust the new tunnel to the old one in such a way as would call for a minimum expenditure consistent with newer ideas as to grades and alignment. The successful bidder for its construction was Charles J. L. Lantry, of Strong City, Kan. This gentleman has associated with him Mr. T. T. Kelly, a former state treasurer of Kansas. A corporation was organized under the laws of Kansas, the name assumed being the Lantry Contracting Company, with Charles J. L. Lantry as president and manager and T. T. Kelly as secretary and treasurer. The contract was signed April 5, 1907, and stipulated that the tunnel was to be completed by March 1, 1908. The engagement of Charles E. Higbee as superintendent of tunnel excavation and of S. A. Maley as superintendent of concrete masonry found the company organized ready for business. Steps were at once taken to secure the necessary equipment. A central power plant was installed at Lynn for the purpose of generating steam, compressed air and electric current for power and illumination. The principal items of this central plant were one battery of two horizontal tubular boilers of 100 and 80 horsepower, respectively; one Sullivan straight line air compressor, class W. B. 2, 20x22-inch cylinder; one 90 horsepower Armington & Sims steam engine for driving the generators; two 25 kilowatt bipolar Edison generators of 125 volts, together

with pumps, tanks, steam and water pipes and such other appliances as are needed in an up-to-date power house. A secondary steam plant was located on top of the mountain for the purpose of supplying power for operating the hoists at the shafts. A 100-horsepower boiler was installed and the steam was carried in pipes laid on the surface of the ground from the boiler to the hoists for a distance of 500 feet each way.

From the central power plant at Lynn a 4-inch air line was laid along the surface of the ground over the top of the mountain to the Wootton portal. At the Lynn portal, as well as at the shafts, 2-inch T's were inserted, from whence the air was carried down into the headings and shafts by 2-inch pipes. The drilling machinery consisted of ten Sullivan piston and ten Jeffrey rotary power drills. For ventilating, two No. 4½ Baker's rotary blowers were secured. These were operated by two 7½-horsepower motors of 230 volts and 28½ amperes. This outfit was moved from place to place, as needed. The cages in the shafts were operated by hoisting engines using either compresed air or steam. For excavating the bench a No. 20 Marion steam shovel was used. This shovel was operated by compressed air from the central power plant. Three Dinky engines kept the shovel supplied with cars. Ten 3-cubic-yard dump cars were needed to supply the shovel, five in a train. The rock crushing and concrete mixing plant consisted of one Ajax boiler and engine mounted on wheels, one Simmons No. 10 rock crusher, one ⅝-cubic-yard concrete mixer of the Ransome type, ten 1½-cubic-yard dump cars and an incline for hoisting the loaded cars from the tunnel grade onto the working platform at the spring line. There was also constructed an electric light and power line over the mountain for supplying light and power to the camps and the tunnel. A telephone system also was installed. The grading outfit was of the usual kind. Owing to the lack of water on top of the mountain the company shipped in four tank cars full every twenty-four hours, approximately 40,000 gallons being required for all purposes each day.

Before proceeding with a description of the work itself it would, perhaps, be best to consider the type of tunnel it was planned to construct. The tunnel, as planned and as finally constructed, has a length of 2,787 feet, or 750 feet longer than the old tunnel. The clear height above the top of the rail is 24 feet, while its width is 17 feet at the spring line. The grade is .5 per cent, as compared with 2 per cent in the old tunnel. The entire length has been lined with a concrete wall of an average thickness of two feet. There are two shafts, one 687 feet from the Wootton portal and the other 1,100 feet from the Lynn portal, making them 1,000 feet apart. These shafts are 109 and 115 feet deep, respectively, and have been lined with concrete. The clear opening of the shafts is about 6x10 feet. At intervals of 232 feet refuge bays have been provided in the wall for men to avoid passing trains. The ends of the tunnel are finished with reinforced concrete head walls. As the contract called for the tunnel to be finished by March 1, 1908, it was evident that work must be begun from several places



STEAM SHOVEL EXCAVATING THE BENCH—SANTA FE RY.

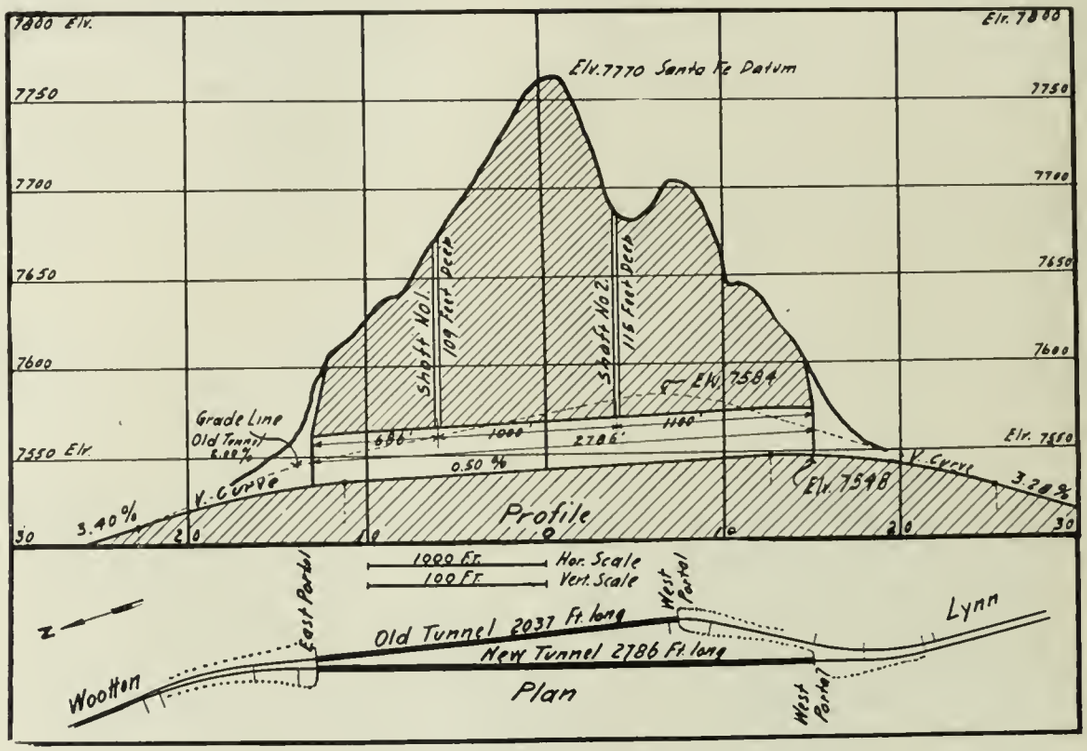
at once. In a case where the mountain over a tunnel is very high only two places of attack are possible, *i. e.*, from the ends. In constructing tunnels similar to the one built at Raton it is customary and advantageous to divide the excavation into what is termed the "heading" and the "bench." The heading in this case was the semi-circular portion above the spring line, and the bench was everything below the spring line. The advantages of dividing the excavation in this manner are various, but the principal reasons are as follows: A hole for ventilation and communication through instead of over the mountain is provided with the least possible delay, the amount of excavation that has to be worked, as in mining, is reduced to a minimum because, after the heading is out, the bench virtually becomes an open cut which can be taken out with a steam

WOOTTON PORTAL, SHOWING HEADING NO. 1 AND BOTH TUNNELS—SANTA FE RY.

shovel; where timbering is necessary to hold the roof of the tunnel the work can best be done before the bench is removed. The number of men who can work in a heading is very limited. Usually from two to three machine drillers, with an equal number of helpers and nippers and a foreman, is all the force that can be used to advantage. Immediately behind these are from six to ten laborers who load the *debris* onto cars and dispose of it. With these limitations as to the number of workmen that can be used in a heading it is evident that there should be as many headings as possible, and it was therefore decided to sink two shafts, as heretofore mentioned. These shafts divided the tunnel into three sections, and each section was divided into two headings, giving six headings from which the work could be prosecuted. These headings were numbered from 1 to 6, No. 1 being at the Wootton portal and No. 6 at the Lynn portal.

Excavation on these shafts was begun by hand on April 2, the power plant not having been completed until May 9. The drilling was done by hand and the excavated material was lifted to the surface by animal power. Day and night shifts of ten hours each were maintained throughout the entire period of construction. In taking out the headings it was found that their helpers would enter and proceed to shovel back any rock that was found to obstruct the working front. As soon as this was done they proceeded to drill a new set of holes for the next blast. The *debris* was loaded by from six to ten laborers onto cars of 1½ cubic yards and two-thirds of a cubic yard capacity. The former were used in headings Nos. 1 and 6, while the latter were used in headings Nos. 2, 3, 4 and 5. The former were pulled by animal power to the portals, and the latter were propelled by man power to the shafts. From the portals the 1½-cubic-yard cars ran by gravity to the waste bank, the empties being brought back by horses or mules. The smaller cars at the shafts were raised to the surface by hoisting engines operating cages.

The reader who is not familiar with mining or tunnel operations can scarcely appreciate the importance of compressed air in such work. Aside from the fact that it greatly increases the speed with which the work can be prosecuted, by substituting mechanical for man power, it has a very important bearing upon the workmen's health. The escape of the air through the machinery lowers the temperature many degrees and at the same time the foul, dust-laden air at the front is constantly being replaced by a pure atmosphere. By permitting compressed air



PROFILE OF THE RATON TUNNELS—SANTA FE RY.

from twelve to eighteen holes were necessary to cover the face in a satisfactory manner. The center set of holes are pointed so as to remove a wedge of rock. Other holes are then pointed straight ahead. Those at the sides, top and bottom are pointed slightly outward. The average depth of the holes was 8 feet and the diameter 2½ inches. Sullivan piston and Jeffrey rotary drills, the former mounted on tripods and columns and the latter on the usual frames, both operated by compressed air at 90 pounds pressure, were used. As soon as the drilling was finished the holes were cleaned by blowing compressed air into them. They were then charged with dynamite, which was exploded by fuse. Fuses instead of electric exploders were used because the former permit of timing each shot in such a way as to give the best results from the explosives used. For instance, the central set of holes is fired first, removing a wedge so that the succeeding shots will have two free forces toward which they can break the rock. The "muckers" at the bottom are fired last. Their function is to throw back the *debris* so that the drillers will be delayed as little as possible before they can proceed with the next set of holes. The shots were generally fired just before meal time. Immediately after they had been fired compressed air was permitted to escape into the heading and the ventilating fans were started. It was thus possible to clear the headings of gases so that they could be entered after meal hour without loss of time. The drillers and to escape at the heading immediately after the shots are fired, while at the same time the exhaust fans are running, the poisonous gases resulting from the explosions are effectually removed in a short time. It is literally true that the very front of the work is the healthiest place in the tunnel. In carrying the lines down the shafts 30-pound plumb bobs, swinging in buckets of water and suspended by No. 14 steel wire from an adjustable screw at the surface, were used. On account of the fact that it was known the distance to which the lines would have to be carried was not great, and the further fact that a line could be gotten clear through the tunnel before any masonry was going to be placed, no unusual refinements were resorted to in doing the work. It was found that only 8 feet could be gotten between the plumb bobs, giving a very short base to work from. Water which was constantly dripping down the shafts kept the bobs in motion. To offset the effect of this two carpenter's horses were set up, one behind each wire, and small scales were attached to the horses. There being insufficient room between the wires for focusing the telescope the transit was set up to one side and the instrument man, after a few trials, got into approximate line. He then watched the motion of the wires over the scales for a period of perhaps five minutes and, having arrived at an average position for the wires, the instrument was clamped and points set in the roof and floor of the heading. The entire operation required less

than an hour and was done during the noon interval. The levels were carried down the shafts by means of a steel tape. When headings Nos. 5 and 6 met the error in distance was found to be 1¼ inches, the error in grade ½ inch and the error in direction 1¾ inches, from which it will be seen that the accuracy of the work was sufficient for the purpose. The first round of shots was fired in heading No. 6 on May 9 and in heading No. 5 on May 24, while heading No. 1 was started on May 28. Now that the two shafts had been sunk and the central power plant was in operation the question might be asked why work did not proceed at all six of the headings? The answer is that the compressor plant was ordered before the shafts had been decided upon and it was found that, even by crowding the machinery, it was impossible to supply air for all six of the headings. The hoists at the shafts, being operated by air, still further reduced the supply for the drills. On June 23 the supplementary steam plant was put into service on top of the mountain, supplying power for the hoists. From this time until July 29, when the steam shovel began work, the other headings might have been worked but the condition of the labor market was such that competent men could not be found. After July 29 the steam shovel, which was operated by air, used up all the surplus there was. It will be seen that there was practically no time when more than three headings were worked at once.

bers spaced 3 feet on centers. Logging, consisting of 3x10-inch and 4x10-inch native pine, was used over the segments, which rested on a 12x12-inch sill at the spring line. All the timbers from the 12x12-inch upward were placed as fast as the excavation in the heading permitted. The spaces over the logging were packed solidly with rock. As the steam shovel took out the bench posts were set under the 12x12-inch sill. These posts were spaced variously from 3 to 6 feet apart, as required. In the course of blasting and excavating the bench some of the timbers were dislocated and proved a source of much expense and delay when the concrete was being placed. As previously stated the entire tunnel was lined with a concrete wall of an average thickness of 2 feet. The mixture was one part of Portland cement, three parts of Arkansas River sand and five parts of crushed sandstone. From the subgrade to the spring line the walls batter outward 6 inches. The width of the tunnel at the bottom is 16 feet and at the spring line 17 feet. The arch is a semicircle whose radius is 8½ feet.

For doing the concrete work the contractor installed a rock crushing and concrete mixing plant in the approach at Lynn, about 200 feet from the portal. The rock was quarried from the adjacent hill within 100 feet of the crusher, which was a No. 10 Simmons. The mixer was of the Ransome type, mixing five-eighths of a cubic yard per charge. The crusher was at the top of the approach slope, about 20 feet above grade. A

A HEADING, SHOWING THE METHOD OF TIMBERING—SANTA FE RY.

On July 9 headings Nos. 5 and 6 met at station 7 plus 12, and on the same day headings Nos. 2, 3 and 4 were started. On August 6 headings Nos. 1 and 2 met at station 8 plus 10, while on September 8 headings Nos. 3 and 4 met at station No. 2 plus 00, Wootton end, completing a hole through the mountain. The total time consumed in driving the headings was 122 days, making an average daily progress of about 23 feet. As during the greater part of the time only three headings were being worked it follows that the daily average was somewhat below eight feet in each heading. The advance by months in headings was as follows: 374 feet; June, 708 feet; July, 1,011 feet; August, 590 feet; September, 130 feet. The most rapid progress was made in heading No. 6, where there was no timber lining to contend. The average daily progress in this heading was 12½ feet, while for the last nine days the daily average was 17 feet. This, of course, means per twenty-four hours. About 55 per cent was taken out through the shafts.

If we take into account the entire tunnel excavation, 25 per cent came out through the shafts and 75 per cent through the portals. In excavating this tunnel no unusual difficulties were encountered. The formation was of soft sandstone, hard shale and some coal. There was very little water to contend with. Heading No. 6 was the only one where there was a solid rock roof, so that no temporary timbering was required. At all other places it was necessary to line with timbers to protect the workmen during the excavation of the tunnel. This timbering consisted of a six-segment arch made of 12x12-inch tim-

bin divided into three compartments was placed above and to one side of the track in the approach. In the bottom of the compartments were chutes discharging into a measuring hopper. Immediately below the hopper was the mixer, and below the mixer and a little to one side stood the cars that received the mixed concrete. The rock was carried from the crusher into the bin by a small chain elevator, and the sand was handled in a similar manner. The cement was carried to the bin in sacks. Water was supplied by a 2-inch pipe discharging into the mixer, the amount being controlled by a boy operating a valve. One man operated the measuring apparatus and one attended the mixer. It will be seen that the entire process of handling the material from the crusher until the concrete reached the cars was mechanical, and from the bin to the cars gravity did the work. The crusher was operated by a stationary engine and the mixer and the elevators by independent electric motors. The cars were handled by Dinky engines. The sand was shipped from La Junta. The crushing and mixing plant was a complete success from every point of view. Work on placing concrete was not begun until October 15, after the steam shovel had been backed out through the Lynn end of the tunnel. The first thing to be done was to place the footing course up to the grade line. When this had been done and the concrete had set the regular concrete forms made of 6x8 inch uprights, spaced 5 feet on centers, were put in place, as was also the logging of 2x10-inch native pine. The uprights reached as far as the spring line, but the logging was only put up for

six or seven feet. Large sheets of boiler iron were spread along the ground on each side of the track in the center of the tunnel. The concrete, which was brought in on 1½-cubic-yard cars, was dumped onto the sheets and from there it was shoveled into the forms. When about 1,000 feet of wall had thus been brought up six or seven feet, a platform was erected at the spring line. This platform was the full width of the tunnel and was the base from which the remainder of the concrete was placed in the walls and arch. A narrow gauge track the same width as that at the bottom of the tunnel was laid along the center of the platform. This was for handling the concrete that was brought in on cars from the mixing plant at Lynn. A movable inclined plane with track, mounted on wheels, and a hoisting engine mounted on a standard flat car made up the connecting link between the track at the bottom of the tunnel and the platform at the spring line. The loaded cars were brought from the mixing plant to the bottom of the incline by Dinky engines and from there pulled up the incline by the hoisting engine. Men handled the cars on top of the platform, the work being so conducted that the tunnel grade was always in favor of the loaded cars. The empties were pushed back to the incline by laborers, and from there they were lowered to the tunnel grade by gravity. The working platform having been completed the remainder of the logging as high as the spring line was put into place. The concrete was dumped onto the platform and from there it was shoveled into the forms. While this was being done another crew of men erected arched rail ribs of 40-pound section to receive the logging for the arch. This logging was carried up six or seven feet on each side. As soon as this had been done the concrete was shoveled into the arch from the platform at the spring line. The remainder of the arch was turned from a small supplementary platform mounted on wheels. This platform was about five feet above the spring line, the concrete being shoveled from the platform at the spring line to this platform, and from there into the arch. The logging was in 5-foot sections and the last two or three feet at the crown of the arch had to be shoved in endwise. All the void space behind the concrete in the untimbered section was filled with rock. In the timbered section of the tunnel the posts, ribs and logging were left in place and were imbedded in concrete. The sills were made of a built-up section of four vertical layers. From one to three of these layers were removed before the concrete was placed in the arch. The tunnel lining proper was finished April 15, 1908. The progress made in lining the tunnel, by months, was as follows: October, 325 cubic yards; November, 1,000 cubic yards; December, 985 cubic yards; January, 1,986 cubic yards; February, 4,173 cubic yards; March, 2,931 cubic yards; April, 1,025 cubic yards.

The work that remained to be done after April 15 was the lining of the two shafts and the end walls at the portals. The concrete lining proved to be a much slower task than had been expected. Owing to the lack of sufficient cars during the excavation on the bench a considerable portion of the temporary timber lining was displaced to such an extent that it had to be removed before placing the concrete. The necessity for filling behind the concrete in the untimbered section also proved a source of much delay. In conclusion, the following statistics may be of interest:

Amount of rock removed from the tunnel prism, in cubic yards	57,427
Cubic yards of concrete required to line the tunnel	12,875
Number of carloads of dynamite for blasting operations	5
Number of carloads of coal burned in generating power	180
Number of carloads of sand shipped to the tunnel for making concrete	290
Number of carloads of cement required for making concrete	116
Number of carloads of rock crushed at the tunnel for making concrete	430
Number of thousands of feet of timber, board measure, required for temporary lining	655
Estimated cost of the tunnel and of the improvements in the Lynn and Wootton yards	$435,000

The work was planned and carried on under the direction of Chief Engineer C. A. Morse of Topeka, Kan., and Engineer F. M. Bisbee of La Junta, Colo. The field force consisted of Assistant Engineer Joseph Wendel with an instrument party, and latterly, during the construction of the concrete work, one day and one night inspector.

The tunnel was completed on June 22 and opened to through traffic on July 2. [Ed.]

FEIGNED DISEASES IN RAILWAY COMPENSATION CASES.

Editor Railway Journal—

In any class of practice, the physician is liable to be confronted by feigned disease or by real disease or lesions induced by factitious means. Failure to differentiate the genuine from the fraudulent may entail damaging consequences to the physician, in insurance practice, in connection with benefit clubs, and especially with railway compensation cases.

Under any circumstances where advantages may be ripe for the impostor to see his way clear in obtaining some easy money, there will always be some unprincipled persons to whom the motive will appeal.

Cases of deliberate and distinctly planned deceit and of factitious disease (malingering) will be considered in this article. Where the feigned disease is the expression of unmitigated imposture, there is always a motive in these cases, and the stronger the motive the deeper laid will be the plan; in some cases actual death being risked with a gamester's courage. If the motive is strong enough no station of life is exempt from instances of this form of deceit. Paralysis, bleeding from the lungs or stomach, persistent vomitings, contractions of muscles, or of limbs, blindness, deafness, incontinence and retention of urine—these and a great variety of maladies have been feigned. Swellings have been produced by ligatures and tourniquets to waste the limbs. Rashes have been produced by cantharides and mustard plasters. An inexplicable chronic swelling of the limb should always give rise to suspicion and caution in making a diagnosis.

Dr. Savage of England has recorded the case of a young woman who feigned bleeding from the stomach by drinking bullock's blood in the slaughter-house secretly and vomiting it publicly.

A case that came under the writer's observation: A young man was knocked down by a wagon and ordered to the hospital. He appeared to be suffering from the shock, but was well after a few days and ordered back to work. He left the hospital in the morning and at noon the same day he came to my office complaining of headache. Suddenly he coughed and brought up some blood mixed with saliva, at the same time stating he vomited blood on three occasions that morning. The color of the blood made me suspicious, and on examination of his mouth, I found a laceration about one inch long and fairly deep across the middle portion of his tongue. He finally admitted he was feigning so that he could obtain a large sum from those responsible for knocking him down. He slit his tongue with a razor.

A man who claimed to have fallen on a sidewalk injuring his leg came under the writer's notice. He had a deep and profusely suppurating wound extending many inches. It was most offensive and no treatment availed anything. Deeply placed in the undermined tissue, a rough elevation formed of dirty gauze was removed. The injured person deliberately incised his previous wound and packed it with a piece of gauze and allowed it to decay so that he could draw his insurance for the limited time allowed by the insurance company.

In cases of dimness of vision following a blow on the head, or a fall, an ophthalmic examination will often detect an ametropic condition of one eye which careful inquiry may prove to have existed before the accident and which only needs the proper lenses for good vision to be regained. This is important, because "affected sight"

is so often pleaded by lawyers as a basis for compensation after injury is pointing to brain lesion.

A passenger insured simultaneously in several insurance companies and after a short time sent in claims to all of them for compensation for a fractured leg. His family physician applied a cast to his fractured leg about three hours after the accident. His plaster paris cast was slit open, and, upon examination, the leg was found to be perfectly sound and showed no signs of fracture. He admitted he feigned, promising a third of what he would get from the insurance companies for silence.

A man receiving weekly wages during incapacity following an injury, may, by refusing to exercise his recently recovered member or through indolence by neglecting to submit himself to the prescribed massage and movements, induce a rigidity, which may permanently incapacitate him.

It is very often impossible to decide whether a victim of a railway accident is a pure malingerer, or has become through the fright and shock he experienced a real neurasthenic; nor must we forget that a small ligamentous sprain of a single minute joint of the vertebral column may give no distinct objective signs, but may produce a very real disablement.

It is of vital importance that any railway company of enough business to engage two or three hundred men should have competent medical authority to pass upon the falsity or genuineness of injuries claimed. The question of settlement for accidents can be left to the layman, but the validity of all claims as affected by the truth of conditions ought to have medical knowledge of competence as the deciding factor in just decisions.

GEORGE WOODNICK, M. D.,
Chief Surgeon Chicago Terminal Transfer R. R.

WILL RATES BE INCREASED?

To raise or not to raise? That is the question. There is no doubt but that the railroads are strongly in favor of increasing the freight rates, and there is no question but what they are entitled to do so; but they are in something of a quandary as to whether or not it will be consistent. The adverse action taken by the Interstate Commerce Commission relative to proposed increase on lumber in the Northwest, has caused the railway managements to pause and consider before any general action is taken in increasing rates. This attitude taken by the commission is construed by some to mean that the President is opposed to an increase. A delegation of prominent railway officials visited the White House and soon afterwards a rumor was circulated that the President was inclined to the idea of an increase of rates, but since then the commerce commission has denied the belief of such a stand by the President. The commission must know. Now the railways believe that the President looks with disfavor on an increase. Hence they are inclined to act cautiously. Perhaps there will be an increase of freight rates in October and perhaps not. Along this line, Mr. C. F. Daly, vice-president and general traffic manager of the New York Central lines, made a brief talk before the New York Traffic Club in which he is quoted in part as follows:

"The railroads realize that their interests are the shippers' interests. Their misfortune is the shippers' misfortune. To destroy the shippers' business would be to destroy our own business. We must file our tariffs with the Interstate Commerce Commission, and that commission has the right to reject any unfair rate. But the railroads do not propose to make an unfair rate. No rate will be raised that will bear heavily on any shipper. The railroads have long considered the advances, but have not decided, and the shippers may rest assured that the railroads will not bear heavily upon them. Advances in rates are matters of necessity with the roads, but they will advance no proposal that will not stand proper investigation. I state authoritatively that there is no intention to make a horizontal advance in rates. The new schedules will be as equitable and as just as it is possible for them to be made after weeks of study, consultation and investigation."

The Rahway Valley Railroad of New Jersey recently complained before the Interstate Commerce Commission that the Delaware, Lackawanna & Western refused to give it switch connection at Summit, N. J. On July 10 the commission ruled that the provision of section 1 of the act relating to switch connections with lateral branch roads does not grant plenary discretion to the commission as to the advisability of such connection. It is the duty of an interstate carrier to make connection with a lateral branch road, either upon the application of that lateral line or of any shipper, upon the three conditions: (1) that such switch connection shall be reasonably practicable; (2) that it can be put in with safety; and (3) that it will furnish sufficient business to justify the construction and maintenance of such switch connection. Under the facts presented the Delaware, Lackawanna & Western Railroad is ordered to grant the complainant a switch connection at Summit, N. J. The order is, however, held subject to modification at any time when the defendant so changes its tracks at Summit as to make such connection impracticable or unsafe.

The United States Circuit Court at Chicago has just ruled that it is unlawful for a railway company to exchange transportation for advertising. It was a test case in which the Monon Route and the publishers of the Munsey's magazines were the interested parties, through a contract involving about $500. The contract was alleged to be a violation of the Hepburn law. In rendering his decision Judge C. C. Kohlsaat said that "if it be lawful to make the exchange of railway transportation for advertising then it would be lawful to do the same in every transaction and the railroad business might lawfully become one of barter and sale, limited only by the demand." This decision settles forever the question of paying advertising space with transportation for interstate traffic. It does not affect transportation thus sold for intra-state travel.

On July 7 Mr. E. H. Gary of the United States Steel Corporation sailed for Europe, but before going gave out an interview in which he is quoted as saying that conditions in the steel manufacturing field had been better the past two weeks than for any time since last October. He states that money is plentiful and many railroads have taken steps to finance their requirements. As to the general conditions, Mr. Gary said:

"The basic conditions of the country are sound. First of all, the moral tone of the people has been elevated. Multitudes have been thoroughly converted to the doctrine of the 'square deal.' It would be useless for any of us to deny that we have been aroused to a keener appreciation of the old maxim that 'honesty is the best policy.' Full credit will be given to President Roosevelt for the effort he has made in raising the standard of business conduct."

FROM MY OBSERVATION CAR.

BY R. R. JESTER.

The Chicago Transportation Association has been holding some most enjoyable and interesting monthly meetings this season. The July meeting was in the form of an outing on Lake Michigan, as the guest of the Indiana Transportation Company, of which Mr. W. K. Greenebaum is general manager, on board the beautiful steel steamship Theodore Roosevelt. The trip was taken on the evening of July 20 and consisted of that company's fifty-mile ride along Chicago's picturesque water front. The members turned out in good numbers and participated in the gayety of the event. The trip included a ride north from the Chicago River along Lake Shore Drive, Lincoln Park and Evanston, thence south past the harbor entrance, yacht rendezvous, Lake Front Park, residential districts of Kenwood and Hyde Park, Chicago Beach Hotel, Jackson Park and near Manhattan Beach. The steamship Theodore Roosevelt is one of the finest pleasure boats on the Great Lakes, is 289 feet long, 40 feet beam, 5 decks, capacity of 3,500 people and a speed of 24 miles an hour. It is handsomely equipped and elaborately illuminated with colored incandescent lights and carries a powerful searchlight. The Indiana Transportation Company, which operates to several resort points on Lake Michigan, caters to the best class of travelers and pleasure seekers. The officers of the Chicago Transportation Association were fortunate in securing this trip in connection with the July meeting.

Secretary Cyril R. Boak states that they propose to hold the August meeting on board the steamship Christopher Columbus, en route to and from Milwaukee, leaving Chicago on the morning of August 10 and returning that evening.

* * *

As the country is now about to enter into a campaign in which the voters expect to elect congressmen, legislators, governors, etc., I would suggest that every voter read the Fourth of July banquet speech delivered last month by Mr. Louis Lombard at Lucerne, Switzerland, and to whom I am indebted for a copy in full. He stated that according to Senator Jones of Nevada there are two classes of people in the Old World—the Kiss Mes and the Kick Mes. To quote his own patriotic words, Mr. Lombard said in the course of his remarks: "In America it is notorious we are all equal—some a little more equal than others, especially our private servants and our legislators, sometimes innocently called public servants. The unhampered inventiveness of our people and the resources of our land could ultimately make us the owners of the earth, provided the proposition I am about to lay upon the desk, I beg pardon, upon the table, of this congress, should be acted upon. I had intended to keep dark this scheme of mine as its publication might some day block my appointment as vice-deputy consular agent to the South Pole or even lower down, but this being a crowd patriotic and friendly, I shall entrust it my panacea regardless of personal consequences. With so many representatives of the sex famed for keeping secrets, I am sure my recipe will not be divulged to any man either dead or not alive. Here it is: To make our country happier and wealthier, I move that our state and national legislatures adjourn fifty-two weeks each year! I had thought of offering a toast to that legislative suicide, but the seriousness of our Independence Day suggests a loftier and more optimistic theme. I would propose we lift our glasses to our next president. I hope that I echo your sentiments in saying, Whatever be his party, may God guide him in what to do and particularly in what *not* to do. Ladies and gentlemen, let us drink to our next president."

Notwithstanding the light vein running through Mr. Lombard's Fourth of July speech, there is a measure of real philosophy that is worth considering well. It sometimes seems as though our country's welfare would be better if national and state legislatures adjourn fifty-two weeks each year.

* * *

Early last month two of the best known men who had been at the head of railway passenger service passed away within a few hours of one another. I refer to George H. Daniels, formerly general passenger agent of the New York Central, and Henry C. Townsend, formerly general passenger agent of the Missouri Pacific. Mr. Daniels died at Lake Placid, New York, on July 1, and early the next morning Mr. Townsend passed away at Port Huron, Mich. Both officials had served as president of the General Passenger and Ticket Agents' Association and were among the very highest type of passenger traffic men in this country. Besides being strong traffic men, both made a great hit in methods of advertising, as they knew how to get the best results from the greatest advertising system in the world—the press. Mr. Daniels was a native of the West, Kane County, Ill., but finally cast his lot and made his greatest record in the East on an eastern road with headquarters in New York City. Mr. Townsend was a native of Pittsburg, Pa., but held his highest position on a western system with headquarters at St. Louis. Any ambitious young railroad man might well read the history of either of these noble characters and get many inspiring thoughts.

S. S. THEODORE ROOSEVELT—INDIANA TRANSPORTATION CO.

The Interstate Commerce Commission has drafted a new uniform bill of lading for the use of movement of miscellaneous freight, and has recommended it for adoption by the common carriers and the shippers. It provides two forms, printed on the face, in different colors, one for "straight" and one for "order" consignments. The "order" bill will possess a certain degree of negotiability while the "straight" bill will be non-negotiable.

PERSONAL

EXECUTIVE, OPERATING AND PURCHASING.

M. A. Gossett has been made trainmaster of the Frisco System at Francis, Okla.

G. W. Ristine has been made president of the Tennessee Central, office at Nashville, Tenn.

S. Buchanan has been made superintendent of the Upper Lake Steamships at Owen Sound, Ont.

F. L. Lewis has been made superintendent of transportation of the S. A. & A. P. at San Antonio, Tex.

John McGie, superintendent of the Rock Island, has removed his office from Geary, Okla., to El Reno.

John L. Shick has been made storekeeper of the New York, Susquehanna & Western, at Stroudsburg, Pa.

W. W. Finley has been chosen president of the Virginia & Southwestern, vice **H. K. McHarg**, resigned.

Theodore Brent has been chosen assistant to the third vice-president of the Rock Island, office at Chicago.

J. W. Mulhern has been made division superintendent of the C. & A. at Bloomington, Ill., vice **W. B. Causey**.

M. E. Towner has been made purchasing agent of the Frisco System at St. Louis, vice **W. E. Hudson**, resigned.

Alexander Bonnyman, general manager of the Atlanta, Birmingham & Atlantic, has been made purchasing agent, also.

P. H. Houlihan, general superintendent of the Chicago & Alton—Clover Leaf—has been made general manager, office at Chicago.

Reuben W. Willis, car distributor of the Indiana Harbor Belt, was appointed superintendent of car service of the Indiana Harbor Belt.

M. A. Murphy, superintendent of the Duluth, Rainy Lake & Winnipeg, has been appointed general manager, with office at Virginia, Minn.

J. A. McDougall has been appointed superintendent of terminals of the St. Louis, Iron Mountain & Southern at Little Rock, Ark., vice **J. A. Linton**, resigned.

L. S. Bourne, formerly superintendent of terminals of the Mexican Central at El Paso, Tex., has been appointed superintendent at Gomez Palacio, Dur., Mex.

F. N. Finch has been appointed acting superintendent of dining cars of the Northern Pacific, with office at St. Paul, Minn., succeeding to the duties of **F. J. Tourtelot**.

S. F. Parrott has resigned as vice-president and general manager of the Georgia Southern & Florida to become president of the Georgia Compress Co. at Atlanta, Ga.

J. A. McLeay has been elected president of the Charlotte, Monroe & Columbia, with office at McBee, S. C., and **L. A. Kerr** has been made superintendent at McBee.

J. M. Warner, acting general manager of the Chicago & Western Indiana and the Belt Railway of Chicago, has been appointed general manager, with office at Chicago.

Henry Miller, of the Wabash, has been chosen president also of the Missouri & Illinois Bridge & Belt, and **Benj. McKeen** has been made vice-president, offices at St. Louis.

John Vollman has been appointed superintendent of dining cars of the Mobile & Ohio, with headquarters at Jackson, Tenn., vice **H. J. Titus**, resigned to go to another company.

J. O. Halliday has been appointed master of transportation of the New York, New Haven & Hartford, with office at New Haven, Conn., in charge of the distribution of motive power and rolling stock.

Huntley Drummond has been chosen president of the Cumberland Railway & Coal Co., of Toronto, Ont., vice **George Drummond**, resigned. **J. D. Hayden** and **Percy Cowans** have been chosen directors.

E. I. Bowen has been made superintendent of the Delaware & Jefferson division of the Erie, vice **W. C. Hayes**, assigned to other duties, and **Theodore Mackrell** becomes superintendent of the Allegheny divisions.

W. K. Thompson has been made district superintendent of the Canadian Pacific, vice **J. R. Nelson**, transferred to London, Ont., as district superintendent. **J. K. McNeillie** becomes superintendent of district No. 1 of the Ontario division.

Thos. Fitzgerald, formerly with the B. & O., has been made general manager to the receivers of the Norfolk & Southern. **H. K. Wolcott** and **Hugh M. Kerr** are receivers. The offices of president, vice-president and secretary are abolished.

T. B. Coppage, superintendent of the Southeastern division of the Frisco, has been appointed superintendent of the Northern division, with headquarters at Fort Scott, Kan. **J. G. Lorton**, superintendent of the Northern division, succeeds **Mr. Coppage** at Birmingham, Ala.

J. T. Arundel, superintendent of the Canadian Pacific at Vancouver, B. C., has been appointed acting general superintendent of the Central division, during the absence of **R. R. Jamieson** on sick leave. **D. C. Coleman**, superintendent at Nelson, B. C., is performing **Mr. Arundel's** duties.

S. C. Stickney has been appointed general manager of the Chicago Great Western, with control of the various operating and traffic departments, and will report to the receivers. **W. B. Causey** has been appointed superintendent of the eastern division, with headquarters at Chicago, vice **C. P. Stembel**, resigned.

M. Hinchy has been appointed acting trainmaster and chief train dispatcher of the Canadian Pacific at Farnham, Quebec, temporarily succeeding **W. A. Rose**, assigned to other duties. **R. G. Wilton**, chief dispatcher at Brandon, Man., has been transferred to Kenora, Ont., and **E. G. Trump** becomes chief dispatcher at Winnipeg, Man.

A. F. Reiner, assistant superintendent of the Chicago & Northwestern, has been appointed superintendent of the Northern Wisconsin division, with office at North Fond du Lac, Wis., vice **W. H. Whalen**, resigned. **F. D. Pendell**, trainmaster at Fond du Lac, with office at North Fond du Lac. **A. W. Tawseley** has been appointed assistant superintendent of the Wisconsin division at Milwaukee.

TRAFFIC AND ACCOUNTING.

J. S. Hall has been appointed general agent of the Michigan Central at Detroit, Mich.

C. W. Nash has been appointed freight claim agent of the Delaware & Hudson at Albany, N. Y.

T. A. Rousseau has been appointed general freight and passenger agent of the Tennessee Central.

L. F. Boome has been made division superintendent of the Mexican Central at Gomez Palacio, Mex.

J. L. Kenealy has been appointed traveling freight agent of the Buffalo & Susquehanna at Wellsville, N. Y.

L. S. Cass is general traffic manager and **C. O. Kalman** is general treasurer of the Chicago Great Western.

J. R. Crooks has been appointed freight and ticket agent of the Pennsylvania Lines West at Dola, O., vice **W. E. Rose**.

T. L. Lawrence has been appointed general agent of the Burlington at Leavenworth, Kan., vice **E. Marshall**, resigned.

D. W. Moore has been made depot ticket agent of the Kansas City Southern at Beaumont, Tex., vice **C. F. Craft**, resigned.

W. E. Downing, assistant general freight agent of the Illinois Central, is transferred to Memphis, Tenn., with the same title.

William C. Maxwell has been appointed general traffic manager of the Wabash, vice **D. O. Ives**, resigned. Office at St. Louis.

J. D. Bateman has been appointed general agent of the Louisville & Nashville at Little Rock, Ark., vice **H. C. Bateman**, deceased.

W. B. Hinchman has been appointed general agent of the Tonopah & Tidewater and the Bullfrog Goldfield at San Francisco, Cal.

J. B. Kent has been appointed contracting agent of the El Paso & Southwestern at San Francisco, Cal., vice **George R. Ruple**, resigned.

T. L. Beckwith has been appointed traveling freight agent of the Florida East Coast, at Jacksonville, Fla., vice **T. H. Parrott**, resigned.

Frank Priest, traveling passenger agent of the Erie at Boston, Mass., has been transferred, as traveling passenger agent, to Buffalo, N. Y.

T. A. Wray has been appointed assistant general freight agent of the St. Louis & San Francisco at St. Louis, Mo., vice **J. F. Mace**, resigned.

W. B. Robbins has been appointed traveling freight agent of the Lake Erie & Western at Indianapolis, Ind., vice **W. A. Keller**, transferred.

T. J. Wall has been appointed traveling passenger agent of the Canadian Pacific at St. Louis, vice **W. S. Merchant**, resigned to engage in other business.

F. W. Elder, traveling passenger agent of the Chicago & Alton and the Toledo, St. Louis & Western at Columbus, O., has been transferred to Cincinnati.

J. M. Ball has been made general agent of the International & Great Northern at San Antonio, Tex. **P. A. Sullivan** is traveling freight agent at that point.

George W. McCaskey, city passenger and ticket agent of the Northern Pacific at St. Paul, Minn., has been appointed general agent at Los Angeles, Cal.

H. M. Dressell has been appointed general agent, passenger department, of the Wabash, with headquarters at St. Louis, Mo., vice **T. F. Harrington**, resigned.

L. F. Moore, general freight agent of the Quincy, Omaha & Kansas City at Kansas City, Mo., has been appointed commissioner of the Wichita Commercial Club.

W. G. Howard, traveling freight agent of the Chicago & Alton and the Toledo, St. Louis & Western at Cincinnati, O., has been appointed commercial agent.

W. B. Shirk has been appointed commercial freight agent of the Missouri Pacific at Alexandria, La. **J. W. Harley** has been appointed freight agent at Alexandria.

W. B. Terhune, central western agent of the Atlanta & West Point and of the Western Alabama at Cincinnati, O., has been appointed commercial agent at Cincinnati.

S. L. Rogers has been appointed general agent of the Chicago & Eastern Illinois, the Evansville & Terre Haute, and the Evansville & Indianapolis, at Nashville, Tenn.

W. H. Comer has resigned as general agent of the Chicago Great Western at Butte, Mont., and has gone into land and live stock business in Helena, Mont., with **Lewis Penwell**.

H. M. Tait, assistant general agent of the Atlantic steamship lines of the Canadian Pacific at Winnipeg, Man., has been appointed general agent there, vice **W. P. F. Cummings**.

George D. Maxfield, district passenger agent of the Wabash at Indianapolis, Ind., has been appointed passenger agent at Buffalo in charge of passenger business in New York state.

J. A. Jackson, commercial agent of the Mobile, Jackson & Kansas City at Memphis, Tenn., has been appointed assistant general freight and passenger agent, with office at Mobile, Ala.

E. H. Shaw, general freight agent of the Southern Railway at Charleston, S. C., has been appointed assistant freight traffic manager at Washington, D. C., vice **J. B. Munson**, resigned.

C. P. Jackson has been appointed assistant general freight agent of the Mobile & Ohio, with office at Birmingham, Ala. **E. B. Blair** has been appointed general agent at Meridian, Miss., vice **F. J. Burke**.

H. T. Bowie has been made commercial agent and **W. V. Severns** has been made traveling freight agent, both of the Southern Indiana Railway, office in Grand Central passenger station, Chicago.

H. J. Falkenbach, commercial agent of the National Railroad of Mexico at Pittsburg, Pa., has been appointed commercial agent of the National Lines of Mexico, including the Mexican Central, at Pittsburg.

George E. Herring, traveling passenger agent of the Louisville & Nashville at Atlanta, Ga., has been transferred, as traveling passenger agent, to Cleveland, O. **J. R. Almand** succeeds **Mr. Herring** at Atlanta.

W. B. Shirk has been appointed commercial freight agent of the Missouri Pacific, with headquarters at Sedalia, Mo. **J. W. Hailey** has been made commercial freight agent of the same company, with headquarters at Alexandria, La.

W. R. Haldane, division freight agent of the Canadian Pacific at Detroit, Mich., has been appointed general freight agent of this road at Vancouver, B. C., vice **B. W. Greer**, resigned. **Edward Olson** succeeds **Mr. Haldane** at Detroit.

O. M. Brown, chief clerk in the New York freight and passenger offices of the Chicago & Northwestern, has been appointed general agent at Philadelphia, Pa. **Robert M. Golden**, traveling agent at New York, succeeds **Mr. Brown**. **J. G. Gray** succeeds **Mr. Golden**.

The Southern Railway has abolished the offices of general freight agent, district passenger agent and soliciting agent at Nashville, Tenn., the Tennessee Central now being independently operated. **R. B. Pegram**, general freight agent, has been transferred to other territory.

C. E. Tenny, city passenger and ticket agent of the Grand Trunk at Quebec, Que., has been appointed passenger and ticket agent at Portland, Me., succeeding **J. Lawlor**. **G. H. Scott**, freight agent at Quebec, Que., succeeds **Mr. Tenny**. **R. P. Smallhorn** succeeds **Mr. Scott**.

C. A. Call, general agent, passenger department, of the New York, New Haven & Hartford at New York, has been appointed general agent, passenger department, at Boston, Mass., vice **L. H. Palmer**, retired. **N. J. Lee**, traveling passenger agent at New Haven, Conn., succeeds **Mr. Call**.

H. Lawton, freight traffic manager of the Mexican Central, will hereafter perform also the duties of general freight agent and the latter office has been abolished. **T. R. Ryan**, formerly general freight agent, has been appointed general western agent of both the Mexican Central and the National of Mexico, at Chicago.

James P. Orr, general freight agent of the Northwest system of the Pennsylvania Lines West, has been appointed traffic manager, a new office, with headquarters at Pittsburg, Pa. **J. J. Koch**, division freight agent at Pittsburg, succeeds **Mr. Orr**. **J. D. Lippincott**, division freight agent of the Pittsburg, Cincinnati, Chicago & St. Louis at Pittsburg, succeeds **Mr. Koch**. **James E. Weller** succeeds **Mr. Lippincott**.

ENGINEERING AND ROADWAY.

R. J. Hood has been made roadmaster of the Canadian Pacific at Brandon, Man.

J. G. Gwyn has been made chief engineer of the Denver & Rio Grande at Denver, Colo.

S. A. Jordan has been made engineer of maintenance of way of the B. & O. at Baltimore, Md.

W. F. Purdy has been made chief engineer of the Wabash Pittsburg Terminal, office at Pittsburg.

F. N. Crowell has been made engineer of maintenance of way of the Pennsylvania Lines at Richmond, Ind.

C. H. Spencer has been made engineer of the Washington Terminal Company at Washington, D. C., vice **A. C. Shand**.

J. Q. Barlow has been made assistant chief engineer of the Southern Pacific at San Francisco, vice **J. H. Wallace**, resigned.

J. H. Broadbent has been made assistant supervisor of signals of the Pennsylvania at Kittanning, Pa., vice **D. B. Bartholomew.**

E. C. Burgess, resident engineer of the St. Louis, Brownsville & Mexico, has moved his office to Kingsville, Tex., from Corpus Christi.

Hans Holland has been made superintendent of maintenance of way of the San Antonio & Aransas Pass, office at Yoakum, Tex.

A. O. Cunningham, chief engineer of the Wabash, has his jurisdiction extended over the Missouri & Illinois Bridge & Belt Co., office at St. Louis.

L. F. Lonnbladh has been made chief engineer of the Tennessee Central at Nashville, Tenn. **F. M. Carter** is supervisor of bridges and buildings.

R. C. Harris has been appointed engineer of maintenance of way of the Cleveland, Akron & Columbus, office at Akron, O., vice **A. B. Jones,** resigned.

H. B. Walkem has been made assistant division engineer of the Canadian Pacific at Vancouver, B. C., vice **R. A. Bainbridge,** promoted. **F. P. Wilson** is made resident engineer at Vancouver.

MECHANICAL.

Frank Maher has been made master mechanic of the C. & A. at Kansas City.

R. E. Fulmer has been made master mechanic of the Fremont & Gulf at Eros, La.

A. C. Miller has been made master mechanic of the Texas Midland at Terrell, Tex.

J. J. Clark has been made master mechanic of the Tennessee Central at Nashville, Tenn.

F. C. Pickard has been made master mechanic of the Mississippi Central at Hattiesburg, Miss., vice **W. J. Haynen,** resigned.

R. Fitzsimmons has been made master mechanic of the Vera Cruz & Pacific at Tierra Blanca, Mex., and **J. H. Gimpel** is made master car builder at that point.

A. J. Isaacs, formerly with the C. & A. at Kansas City, has been made master mechanic of the Mexican Central at Chihuahua, Mex., vice **S. E. Kildoyle,** resigned.

W. T. Fitzgerald has resigned as master mechanic of the Wisconsin & Michigan to become superintendent of motive power of the Idaho & Washington Northern, vice **W. J. Spearman,** resigned.

E. E. Booth has been made roundhouse foreman of the Missouri, Kansas & Texas, at Denison, Tex., vice **S. J. Bergen,** resigned. **Chas. Scow** has been made foreman in the car department at that point.

C. E. Fuller has been made superintendent of motive power of the Union Pacific, vice **W. R. McKeen,** resigned, office at Omaha, Neb. **Mr. McKeen** will devote his attention to the manufacture of motor cars.

R. B. Smith has been made foreman of motive power and equipment of the Cincinnati, Lebanon & Northern at Pendleton, O., vice **John Stutter,** resigned. **D. J. Durrell** is made master mechanic at Cincinnati.

J. J. Waters has been made superintendent of machinery of the Mexican Central at Aguascalientes, Mex., vice **Benjamin Johnson,** resigned. **W. B. Page** is assistant superintendent of machinery at Aguascalientes. **M. J. Schneider** is superintendent of machinery of the Mexican International at C. Porfirio Diaz, Mex. **W. Greenfield** has been made material agent of the Mexican Central at Tampico, Tex.

OBITUARY.

Jos. T. Ripley, formerly with the Santa Fe, died in Chicago, July 9, aged 60 years.

D. S. Dockstader, formerly car foreman of the Erie, died at Jamestown, N. Y., on July 13.

W. R. Peabody, formerly assistant general freight agent of the Missouri Pacific, died on June 22.

George Hackney, formerly superintendent of machinery of the Santa Fe, died last June, aged 82 years.

RESTRICTING WATER POWER AT NIAGARA FALLS.

Some few months ago President Roosevelt was instrumental in getting appointed a joint International Waterways Commission to investigate the diversion of water from the upper lakes and upper Niagara River for power and drainage purposes and to determine how much might be thus used without injury to the scenic features of Niagara Falls and to Lake Erie. This commission is composed of representatives from this country and Canada. A report has been submitted to the Canadian parliament by the Canadian members of the commission, which recommends that the United States shall prohibit the diversion through the Chicago drainage canal of more than 10,000 cubic feet of water per second, which amount is considered ample for Chicago's sanitary necessities. This amount will lower Lake Erie about five inches. As to utilizing Niagara Falls for power purposes, the commission is opposed to injuring the scenic effect of the falls and recommends that not more than 36,000 cubic feet of water per second be taken from the river on the Canada side, and not more than 18,500 cubic feet taken from the United States side, and that a treaty covering these conditions be limited to a term of twenty years.

FACILITIES FOR CATTLE SHIPMENTS.

The Western Cattle Association held a meeting recently at Winnipeg, Man., at which it decided to petition the Board of Railway Commissioners of Canada, as follows:

That railways be compelled to furnish cars within a reasonable time after ordering, say four or five days.

That on all lines a scheduled freight train be run once a week or oftener, as trade calls for, and at a rate of from 20 to 25 miles an hour.

That sufficient yardage be provided, properly equipped with feed racks and water troughs, so cattle can be cared for at loading points, and unloaded at least once every 24 hours.

That shippers kept waiting an unreasonable time should be paid by the company for loss and expense, and that in case export cattle are kept waiting so long as to lose their boat, the railway company be held responsible for the loss.

The financial flurry of the past few months has had a decided effect upon immigration to this country. Nothing else could be expected, as most of the immigrants received are those seeking employment, and their families. According to the report of the immigration bureau at Washington, the greatest decrease in immigration to the United States in five years is shown for the fiscal year. The month of May, 1908, showed a decrease of 76 per cent as compared with 1906, and a decrease of 80 per cent as compared with 1907. The total immigration from all countries for the six months ending May 31, 1908, was 227,283 as compared with 674,684 for the same period in 1907.

A legal question has been raised in Texas pertaining to roads maintaining the office of train dispatcher within the state. A law was enacted some years ago, compelling all Texas lines to keep general offices within the border of the state. Recently the Paris & Great Northern, a Frisco branch, removed the office of train dispatcher from Paris, Tex., to Ft. Smith, Ark. A protest was raised by the state authorities and after considerable investigation and legal discussion, the state attorney general's office, on July 1st, advised the state railroad commission that a train dispatcher is not a general officer of a railroad. That settled it.

MECHANICAL

RAILWAY MASTER BLACKSMITHS' CONVENTION.

The International Railroad Master Blacksmiths' Association will hold its sixteenth annual convention at the Grand Hotel, Cincinnati, O., on August 18, 19 and 20. To those familiar with the splendid work this organization has accomplished in the past, no special inducements need be offered to bring out the railway master smiths of the country. Its past history speaks for itself. The railway master blacksmiths of the United States, Mexico and Canada have established a record for good aggressive association work that is second to none in the country. The results of their practical deliberations have been applied

GEORGE H. JUDY

to railway shop practice with results that have returned many fold. There is not a railroad in the country that cannot well afford to send their foremen to these conventions every year and pay all their expenses as well as furnish transportation. Every railway master smith should endeavor to be present and enjoy the intellectual benefits derived from these association meetings.

Secretary A. L. Woodworth of Lima, O., has sent out announcements relative to the hotel accommodations, rates, etc., in which he states that all arrangements for the meeting at the Grand Hotel have been made and that the rates are as follows: "American plan, $3.00 per day, each person occupying room without bath. Rooms, American plan, $3.50 per day, two in a room, or one person occupying room with bath $4.00 per day. European plan, $1.50 per day, each person occupying room, or two persons occupying room with one double bed $2.50 per day. Rooms with bath $2.00 to $2.50 per day each person occupying room. We are also to have the use of their convention hall and ladies' parlor for which no charge is made. Reservations can be made in advance by corresponding with the A. G. Corre Hotel Co., Cincinnati, O."

TOPICAL PROGRAM.

The list of topics to come before the convention, and chairman of each topic committee, are as follows, papers and discussions of which will appear later in the RAILWAY JOURNAL:

1. "Flue Welding," George Lindsay, chairman.
2. "Tools and Formers for Bulldozers and Steam Hammers," G. M. Steward, chairman.
3. "Case Hardening," W. V. Laizure, chairman.
4. "High Speed Steel and the Results Obtained," J. S. Sullivan, chairman.
5. "Piece Work," T. J. McCann, chairman.
6. "Frogs and Crossings," T. F. Keane, chairman.
7. "Subjects for 1909," S. Uren, chairman.
8. "Locomotive Frame Making and Repairing, Steel and Iron; and Your Experience on Both Steel and Iron," J. T. McSweeney, chairman.
9. "Thermit Welding of Locomotive Frames and Other Work," G. W. Kelly, chairman.

The officers of the association are as follows: President, G. H. Judy, B. & O., Pittsburg, Pa.; first vice-president, J. W. Russell, P. R. R., Renova, Pa.; second vice-president, G. W. Kelly, Cent. of N. J., Elizabeth, N. J.; secretary-treasurer, A. L. Woodworth, C., H. & D., Lima, O.; chemist, G. H. Williams, B. M. Jones & Co., Boston, Mass.; chairman of executive committee, John Connors, A. & W. P., Montgomery, Ala.

FEW WORDS FROM PRESIDENT JUDY.

President Judy has issued the following circular letter which speaks for itself:

"Our next meeting is being looked forward to with a great deal of interest by all classes of railway officials who are interested in the economical operation and maintenance of rolling stock. It is important, therefore, that as many as can possibly come be prepared to impart some knowledge as to how the work in the smith shop may be improved and the output increased. Sketches of formers, dies or devices of any kind that will lessen the cost of our products are especially solicited; papers or talks that are calculated to edify and instruct will be valuable and will tend to make our proceedings interesting and valuable to both ourselves and those in authority over us.

"Since our last meeting the railroads of this country have suffered a great falling off in their receipts, and any helps in the way of labor-saving devices or improved methods that will cheapen our products without detracting from their utility will reflect credit upon the organization. Enclosed herewith is an announcement of our next meeting and a blank application for membership. If you are already a member please solicit someone who is not; but if you are not already enrolled, fill in the blank and send it with the fee to our secretary, whose address appears in the announcement accompanying this letter."

TO THE RAILWAY MASTER SMITHS.

Editor Railway Journal—

As convention time is near at hand for the International Railroad Master Blacksmiths' Association, I hope you will permit me—a member of that splendid organization—to take a little space to make a few suggestions to our fellow members.

We believe that we have one of the finest railway mechanical organizations in the country, headed by a fine lot of officials. The writer would like to make a few suggestions prior to the coming convention which he believes are for the good of the association. These suggestions are not made as a criticism on our past records or deliberations, but the older we grow the more we learn and more we have to think about. Hence these ideas.

First, I would suggest that the association take some action at the Cincinnati convention relative to securing or adopting an official button for our active members. Could not a committee be appointed to design and select a nice gold button to be paid for by each member, said button not to cost over $1.00 each? All other railway mechanical associations have these emblems and are proud of them. We should have the same, should we not?

Again, it has occurred to the writer that if our association had a sort of a publicity committee, composed of say twelve or fifteen members, to get up at least one article each month in the interest of our craft and have them published in the official paper, the RAILWAY JOURNAL, we would have a more interesting association. Such articles would not only be edifying to our members, but would also be a help to us in getting new members inasmuch as they would tend to advertise our association and give it standing. We have as bright mechanics in our organization as can be found in any special field. There are many mem-

bers who have bright ideas and clever devices which, if put in the columns of our paper, would be of great benefit to the railway service. I am confident that we can get all the space we want in the RAILWAY JOURNAL for these articles, and we might also develop a sort of a Question Box in this connection—queries and answers to be published in the paper. These things will inspire the young men in our shops as well as aid ourselves. There is not a member of our association who does not create new ideas or devices every year, and if his idea or device is brought to the attention of the members of the craft through the columns of our monthly paper, a material good will come of it. Even a simple idea, if a good one, has a great value ofttimes. Such methods of improving our profession add to our dignity and ability as mechanics, and I believe are highly appreciated by our companies. The time and expense for each contribution would be comparatively nothing in proportion to the benefit derived therefrom. We all understand that newspaper men are not free travelers on our roads any more, hence cannot get around to hunt these things up for us, consequently it is our place to dig them up ourselves and send them in. We have a paper that has been a friend, and an enthusiastic one at that, for our association, and if we cannot exert ourselves to help our own cause and profession through its valuable assistance, it might appear that there is something lacking in our ambition.

The papers and discussions that come before our convention every year are valuable to us, but there are many little odds and ends that come up in our work during the year that do not get before conventions, yet would be proper if presented in a railway newspaper. We must not forget that we are helping our companies when we help ourselves by these methods.

Another thing, briefly: As we have quite a number of new members and prospective members at our conventions each year, would it not be well for us to have a regular reception committee whose duty it should be to meet these new friends when they first come to the convention, see that they are introduced to our officers and older members, see that the ladies with them are introduced to the members of the Ladies' Auxiliary, and help them in every way consistent. Such courtesies help to make our conventions pleasant and instill in us a more fraternal spirit. Am I right?

In conclusion, let me suggest that every member appreciate the responsibility that befalls him as an individual, to make every convention a success, and let him realize the importance of doing his best to build up the organization and help our able officers in every way possible.

These are only a few friendly suggestions that the writer hopes will find favor with his fellow members and trusts they are worthy of consideration. Would be glad to hear some from other and older minds in our organization.

J. E. CARRIGAN,
Foreman Rutland Railroad, Rutland, Vt.

DISCUSSION ON ALLOY STEEL.

The following is the topical discussion on the subject of "Alloy Steel; Results from Use in Machine Tools and Special Cutters," which came before the Master Mechanics' convention on June 22 last:

J. A. Carney, C., B. & Q.: Alloy steel is commonly known as "high-speed" steel. Some five years ago a specification was made for certain lathes which gave the general dimensions of swing and length between centers and stipulated that they should cut 50 feet per minute with ⅛-inch feed and ¼-inch depth of cut in medium steel. These specifications were submitted to machine tool makers and without exception came the reply that such tools were not made. Today tools are turned out whose principal selling point is the fact that they will more than do the work specified five years ago. So much for the improvements in machine tools brought about by the introduction of alloy steel. The ability to take heavy cuts at three to four times the speed used with tempering steel is an item of great merit, but to my mind the most valuable feature is the steel's ability to continue at work almost indefinitely without losing its cutting edge. The time taken removing tools which have lost their cutting edge and replacing them with dressed tools is dead loss; it curtails output and prevents maximum efficiency of a machine and is a source of annoyance to the machine operator.

Compared with tempering steel one fourth of the number of tools of alloy steel are a more than ample stock because of their ability to stand up to the work. In one case 250 pounds of tempering steel was replaced with six pounds of alloy steel. The money spent on dressing tools is probably not one-tenth of what it would be if a similar output were undertaken with tempering steel. The high cost has made it unprofitable to use alloy steel for heavy milling tools, reamers, cutters, etc.; and it is very generally the practice to use teeth of alloy steel inserted in a body of a material much cheaper and less liable to fracture. The results are good, a more even and efficient temper can be obtained on a small piece than on a large and bulky one, and there is no danger of spoiling the body. The milling cutter with inserted alloy steel teeth has brought the slab milling machine to its present state of high efficiency and on many operations it is more efficient than a planer.

Drills and reamers with special alloy steel inserted cutters have revolutionized many methods of finishing engine parts. Steel bushings 2½ inches and 3 inches in diameter bored from a solid rod can be made cheaper than by any other process. Cored steel castings that were formerly bored out on a lathe or boring mill can be reamed out on a drill press with a special cutter for one-fourth of the former cost. One reamer with alloy steel cutters will ream a hole increasing the diameter one-half inch in one cut where four cuts are necessary with tempering steel. In a shop which formerly spent $75 a month on repairs to reamers the cost has been reduced to less than $5 with high speed reamers.

It is needless to go into a long list of detailed operations; they are to be found in every shop, and if we are a little slow catching on some of our good friends in the machine-tool line will show us the error of our ways. One of the most noticeable improvements on some classes of machines is the method of hastening the work, brought about entirely by the use of alloy steel. This is particularly true on the new designs of driving-wheel tire lathes.

Alloy steel is particularly valuable in finishing brass and a speed of from 200 to 375 feed a minute can be maintained. Sand in the casting does not so seriously affect the cutting edge as in tempering steel. These results are impossible with tempering steel. The use of high speed steel for track work is of immense value. There is no shop of tool dresser with a section gang and the failure of a drill may mean the loss of a day's work. In a recent test on track drills a special make of tempered steel drilled 47 holes 15-16-inch diameter ⅝-inch deep and had to be redressed. A high speed steel drill at the same speed and feed drilled 308 holes and was in good condition.

Flue beading tools, rivet sets, air-hammer chisels, etc., made of alloy steel do so much more work than tools made of temper steel that they are an economical proposition. Rivet sets should not be tempered. The heat of the rivet does the tempering.

Plates of alloy steel have been successfully brazed to pieces of common soft steel and used for finishing tools on tire turning.

It would be almost impossible to tabulate the improvements made and the costs reduced by alloy steel, but it can be summed up as follows: First, heavier cuts at faster speed; second, heavier and more powerful machine tools; third, improved methods of fastening work; fourth, use of inserted tooth cutters in place of single tools; fifth, it is difficult to say how much a reduction in cost of machine work can be attributed to alloy steel, but this fact is apparent: An increase in machinists' wages of about 35 per cent in the past six or seven years has not increased the labor cost of machine work, and in many cases the cost has been lessened by the use of alloy steel and machines designed for its use.

Mr. Henderson: The particular point in connection with the tool steel, as brought out in this paper, is the enormous increase in the size and capacity of machine. My attention was called to that two months ago by a test which was made by the William Sellers Company of a couple of wheel lathes which they had drilled for the M. K. & T. Railway. There were a number of new principles involved and brought out in connection with the use of this steel, and whereas a few years ago it used to require ten hours or one day to repair a pair of tires, in this test three pairs of tires were turned up in one hour, which is a pretty good showing. Of course, this was a combination of high speed steel and very heavy machine drill for the purpose of getting all there was out of it.

F. F. Gaines (Cent. of Ga.): Recently I have had a chance to try some high speed steel with vanadium content. The tools I tried were in connection with pneumatic tools, caulking, chipping chisels, things of that sort. It is simply wonderful the punishment you can put that steel through for that purpose. I am going, later, to experiment with it in machine tools to see if I can get as good results. I would like to hear if anyone has tried the high speed steel with the vanadium content in it.

H. H. Vaughan (Can. Pac.): The use of alloy steel has practically made a revolution in our machine shop practice in the last few years. That is a fact which I think no one will deny. Most of us will probably remember the convention of 1901 when the representatives of the Bethlehem Steel Company were exhibiting samples of chips such as none of us had ever seen before. Since that the use of alloy steels has come in until today they are, I suppose, used in practically every railroad shop as well as other manufacturing establishments. In getting records today of what can be done it is more a question of the class of machinery that our shops are equipped with than of the composition of the steel. Our experience has generally been that it is necessary to use a certain amount of caution against too much crowding with these high speed steels. We are liable to waste more money tearing tools of the older type to pieces than the increased output pays for. Perhaps from one point of view it would be better to tear them to pieces and replace them with others, but it is not always easy to get money from the management to replace tools that are only a few years old and which will give us pretty good service. In our selection of high speed steel we have found it advantageous to pay a good deal of attention to the strength of the steel. There appears to be a variation between the compositions of the steels offered by the various makers, although a majority of them seem to me to give fairly reasonable results. It is also difficult to pick between one steel and another on tests, but we do find that some steels are very much more friable than others and it is rather a hard thing to clean up a dollar or a dollar and a half high speed steel in a cut just because you are using a brittle steel. We found considerable advantage from making a series of tests, taking a number of different makes of high speed steels and selecting those which appeared to break the least or to be liable to fracture the least. Another thing which we have done, which I think is a good plan, is to limit the number of high speed steels we use to a certain quantity. Our standard is to use only three steels, and while we have, of course, had a good deal of difficulty in keeping down to that, we have done so for the last year or two simply to have everybody familiar with the standard grades of steel, and not handle ten or fifteen different kinds of tool steel through the tempering room. I would certainly concur with Mr. Carney as to the wonderful wear that these steels give us when properly handled and taken care of. Our wear with high speed steel is very small, considerably less than it used to be, I believe, with carbon tool steel in the older days, and on drills, especially with certain makes of high speed drills, we have found we could drill about a thousand feet of metal per inch of drill, which is certainly a wonderful record for a material that will drill at the speed which the high speed steel does. I feel that the steel people almost can take a rest at the present time. It is up to our equipment to catch up with the steels in many cases. Those of us who have the most modern tools can make good use of them; but in the older tools we are running up to the capacity of the steel, and it means a large expense in the future in tools and machinery to keep up with the present advance in alloy steel.

C. D. Young (Pa.): In answer to Mr. Gaines' question as to high speed steel that is in use with vanadium, I might say that about a year and a half ago we started to try vanadium high speed steel and got excellent results from it. I think the steel that we got contained about 17 of vanadium, about 7 of chrome and about 8 of tungsten. So in this combination vanadium is the larger proportion. That steel is cited in Mr. Taylor's paper read before the American Society of Mechanical Engineers. I think Mr. Taylor thoroughly covered the high speed steel question up to the time that he wrote his paper. We have been using this steel now in cast iron, manganese steel, on high carbon steel and some on brass; but not on bronze. It has not given any service there. We have been able to turn out 15 pairs of driving wheels with vanadium tools without regrinding, and we have averaged about 11 pairs of wheels. These wheels were turned out on a 36-inch truck wheel lathe at an average time of about 40 minutes. Tools with vanadium steel have given very good service.

The President: The question was raised as to the extent to which vanadium had been used in tool steel. I can only tell you about one chisel, that is from actual experience. We had some trouble with transmission bars on a certain class of engine, and decided to order some with vanadium steel. We started in to machine them. Well, I guess they are busy at it yet in our shops. They arrived some months ago. They finally, in experimenting, took out a piece and made some excellent cold chisels from the vanadium steel. We took the matter up with the vanadium people and it was finally traced until they discovered that the steel was intended for tires instead of for transmission bars, and I can safely say that if that is the quality of steel that they are furnishing for tires we can expect extraordinary wear from them in the line of service.

R. P. C. Sanderson (Virginian): One point in connection with this matter of high speed steels in modern machine shop practice has been referred to only indirectly, and that is the system of shop methods of using it. To illustrate the point I wish to make I will say that when the Taylor-White process steel was first exploited in this country at the time Mr. Vaughan referred to I visited the Bethlehem Steel Works with a view to going into the matter personally to see whether it would pay the company I was then working for to buy the rights and use it. They gave me every facility for going through the shop. I found that they had gone to work in the most thorough manner and figured up the actual capacity of every machine they had. They had calculated the strength of the spindles and arrived at the strength of their lathes and tools holders and so on, the strength of the gears in driving machines and they decided just what pressure would be borne at the point of the tool without paralyzing the machine. In some cases they had gone so far as to break the machines open to establish that pressure. Having done that they went through a careful series of experiments to show the power required to tear out the metal with properly formed tools at given speeds, depths of cut and feeds in different qualities of steel, nickel steel, high carbon and low carbon steel and wrought iron. Having done that, they tabulated the work that should be done in speeds that should be used for the different feeds and cuts of each machine in their shop. Then they did not leave it optional with the men at all as to how they should turn out the work, but they have speed bosses around the shop who check up the speeds actually used by the mechanics, and they followed it up so closely that they practically got the maximum possible output from each machine from each type. That was done in that shop, and I made up my mind that a large portion of the great advance they had made in machine shop practice was due to their thorough method of enforcing the maximum output of every machine and every man rather than the mere ability of the tool steel to stand the work; and we cannot get the results that we should unless the same pains is taken by the machine shop foreman and management to force the output of each machine up to the full capacity both of the machine and the tool steel. One thing won't bring results without the other.

J. F. Devoy (C. M. & St. P.): Much of this discussion seems to resolve itself in the amount of work that can be got out of a lathe or a machine of that kind, and particularly with reference to the wear of steel. I would like to mention one thing that to me appears more important than the getting out of the work. That is, that in turning tires of drivers, or a steel tire wheel, I have in many cases and on more than one railroad seen the operator pay absolutely no attention to what the size of his wheel was to be turned. I would much rather lose ten or fifteen or possibly twenty per cent in the amount of work done, and on every pair of wheels see the witness mark, or a small portion of that tire that had not been turned away. I would prefer that last sixteenth of an inch in a tire for additional wear than I would to see a man rip a tire to pieces in say seven or eight revolutions on a driving wheel lathe. You will save much more money in the long run if you attempt to make your operator observe that point, and if he will in making the wheel each time try to observe that I believe you will save more than you will in any output.

Another point came to me very clearly in looking to the reason why we have cracked tires, especially in the winter time. It appeared to me that in turning the tires, especially where a heavy cut was made on the flange, that possibly the tool, notwithstanding the great power of the lathe, had, so to speak, laminated the steel, and that there was a slight fracture there. If any of you have examined tires as they first begin to break, especially in a cold country, you will see a slight crack on the outer edge of the flange of the tire, and following that up further with a microscopical examination it has appeared to me that a great deal of that has been caused in the driving wheel lathe. I am not at all opposed to a powerful machine; the more power it has the better, but I do particularly want to call attention to the fact of seeing that every operator should leave that witness mark on his steel tire.

George L. Fowler: I would like to corroborate what Mr. Devoy has just said in regard to the ripping-off of steel and

the condition it is left in in exceedingly heavy cuts. Take a tire wheel with a cut of ⅜ inch to ½ speed, or ½-inch cut and 3 inches in speed, it leaves a surface with the metal very badly cracked and an examination of some of that work under a glass leads me to believe that those cracks extend down in for at least 1-16 inch in very many cases. I was called in a short time ago to offer a remedy for some troubles they were having with an electric car, and I found they were turning over steel wheels under exactly those conditions. I suggested that instead of finishing the wheel with that exceedingly heavy cut they finish it with a light cut, perhaps taking out a little more metal, but leaving the metal on the surface of the tread smooth and free from those cracks. The difficulty of cracked wheels and chipping in the flanges, entirely disappeared by that simple remedy of leaving the tread in good condition when it was put back in service.

Mr. Bentley: I think there is a great deal in what Mr. Devoy has said. I don't know whether he can get a witness mark on all of his wheels. He may be able to leave a witness mark on one tire; but I don't see how he could do it on all of them. I believe we leave our wheels altogether too rough, and I feel satisfied that there is an excessive wear after they are put under the engine. I think we ought to leave our wheel tire tread smoother than we have been doing. I don't altogether agree about the checks in the flanges. I have seen a number of cases where you get one tire of a pair entirely free from tracks, and the next one would be so badly checked that if it were not removed it would have broken. I have always claimed that the tire-maker was responsible for that condition, and not the brake on the engine or anything we did to the tires that would bring about that result.

Mr. Forsyth: I was interested in the last part of Mr. Carney's paper where he referred to the fact that the increase in the output due to high speed steel had about increased the offset in wages and that suggested to me a comparison in the efficiency of the tools—the efficiency of the men and the wages paid. When I was at Mr. Carney's shop, he pointed out to me a machinist who was earning nearly $200 a month on piece work. I remember the time when the mechanic of the Altoona shops was not earning half that money, and it occurred to me that there might be a possibility of the machinist getting a greater benefit from the use of high-speed tools, and things of that kind, than the railroads got. I notice the statement of the gentleman who repaired 15 pairs of tires turned in a day with one grinding. It must have been a very powerful boring mill that the company had bought at a big expense, and there was high speed steel there which was bought at a high price, and the machinist only had to turn that tool once for that fifteen tires.

Yet probably he was paid a pretty good price per piece. The thought I wanted to suggest is that it has not been observed that the cost of repairs of locomotives, even on a basis of the increased weight, has not been reduced very much, and yet if we were to get the maximum benefit—if all the expense for putting in heavy machine tools and electric motors is considered, and if all those things are so efficient and do so much more work than the old style work, why don't the railroads show a much larger reduction in cost of repairs? Although I am in favor of a machinist earning a fair day's wage, possibly in many cases he is being very much overpaid, and that the reason you don't see it is, is because you are getting such an enormous efficiency out of those improved things.

T. H. Curtis (L. & N.): I listened to what was said about the cracking of tires, owing to the high duty steel. I want to ask if climatic conditions don't enter into that. The L. & N. was the first one to use the heavy wheel lathes. We take all there is of first cut and finish it in the second. If a tire is worn deeply it doesn't make any difference. We have about 800 locomotives on an average for the last four years and we haven't broken a tire. I don't see what the tire lathe has got to do with the tire in the breaking of it. On the other hand, in turning M. C. B. 5x9 axles in 5½x10 double-headed axle lathes, I have seen the axle spring in the middle on the first cut by taking off the stock. It is finished on the second cut by a light cut. We have never had one of those axles break, nor to run hot through the journal being out of true. I have been watching that very closely. I only brought this up as a suggestion to meet what has been said about the improved work done by high duty steel.

Mr. Gaines: I want to confirm what Mr. Curtis has just said. I don't believe that the rapid work has anything to do with the development of flaws in the tires. I know one road that has been turning out its steel tired passenger coach wheels with a roughing cut, omitting entirely the use of the scraper. We find that these wheels after five miles' use are perfectly smooth.

Referring to what Mr. Forsyth had to say in regard to the company getting the benefit of the cost: I believe we are going to get that benefit. We are getting it now some, and I think we are going to get it more as we get into the use of the handling of high speed steel. I have recently installed one of those 42-inch heavy duty steel tired wheel lathes. We used to get out two pairs of wheels or two and a half a day with an old machine. We don't employ a regular machinist. We use what we call a handy man and we are getting out our wheels for about 20 cents a pair where we used to pay anywhere from 80 cents to a dollar.

Mr. Devoy: So far as my observation is concerned, climatic conditions absolutely govern all tire failures. As soon as the good weather comes you are absolutely through with your tire failures. I would like to ask the gentleman in the South if he ever had a tire failure, because I don't see how they could down in that section. I would like to ask if he has ever paid any particular attention to the making of wheels and as to whether he has made any figures as to that 1-16 inch he has saved in tire wear. It will pay him. I don't object in the slightest to the amount of work a man will do; but there is a point in which he can save money by not turning off the steel. If any of the gentlemen have had any tire failures, have they ever taken the pains to find out as to whether there were any cracks in the flange of the wheel; because invariably they do occur, and in taking the matter up with the steel people I have never heard them offer any remedy.

D. J. Redding (Lake Erie): I think we are all familiar with the use of high speed steel. I will have to admit that I never heard of the crack spoken of in the driving wheel. Possibly it is because we don't have any extreme cold weather.

Mr. Vaughan: I would like to say in regard to this cracking that we have had several cases of slight cracking in the flange and on engines we never had any turning except the first turning at the works. I won't oppose the idea that a heavy turning of the flange might start little cracks, but I am inclined to the idea that this damage wouldn't occur if the tire were perfect. If there is any defect in the tire, a heavy cut might disturb the metal and start a crack. I believe these cracks that start through the flange are entirely due to the bending of the flange. There is no question at all in my mind that climatic conditions have everything to do with it. All our tire troubles come in the winter time. As soon as the frost gets out of the track we don't have any tire troubles until the next winter. That is one of the troubles we have experienced with the very best grades of tire we can get,—a little crack starting through the top of the flange. I believe it is due to the bending backwards and forwards of the flange. I think tire troubles have increased under severe conditions on account of lack of stiffness in the center; and while we are using a very much stiffer center than most people we have still a little of it.

Mr. Curtis: I think I should answer the gentleman who asks if we have inspected our wheels. Our wheels are all inspected carefully and we leave a little black spot as a general rule on one of the wheels, and the wheels are all properly mated, workmanship first class. I recall the breaking of a tire on a 68-inch wheel on a hot summer day. The tire was 1¼ inches thick and had been run too long. It broke from the inside outward. That is the only one I recall in the last five years, and that was before we started to use the heavy duty tire steel.

The President: I think a good deal of attention should be given to what Mr. Vaughan has said in regard to the springing of the tire and wheel causing these flange cracks, and it is possible that it is caused sometimes by unequal shimming of the tires in setting them. For instance, if you do not shim the entire circumference of the wheel there are apt to be spaces left where springing will occur.

C. E. Chambers (Cent. of N. J.): I know of cases where the break in the tire certainly started through the flange. Many times I think the breakage starts through the springing of the wheel. There is no doubt in the next five years most of the railroads will overcome a large amount of these troubles, by coming to the conclusion that putting more money on a wheel is money well expended. I think while the steel center proposition went into effect, most railroads had adopted the ordinary cast iron patterns.

Mr. Redding. The introduction of high speed steel started the practice of making records on boring mills. I never found yet in my experience eight driving wheels taken from under a consolidation locomotive where the centers all callipered alike. Where you bore them in such a hurry, and necessarily tried to bore them to one size, somebody has got to shim them when they are put on. I think they are broken as much from improper shimming as from any other cause. The men are not expert mechanics and don't realize the necessity of working to a 1-60 or 1-80 inch, as our gauge calls for. The majority of men, in boring tires, don't know anything about an 1-80 inch. They use a rule marked in sixteenths. I am inclined to think that a little less speed might very often save the breaking of tires.

A. Lovell: The question has been raised here as to whether the full benefits of high speed steel were being realized or whether the extra cost of the machines and the benefits of the high speed steel were not being used up in paying the additional wages to the men operating them. I think that is a matter which will work itself out in time to the benefit of the railroad. I think possibly as yet it is not fully adjusted and it is a very important matter that when new and improved machines are introduced into any shop where piece work rates or any premium system is adopted, it is very essential that the piece work rate shall be adjusted to fit this new condition of things. The old condition should not prevail. Again, it is very important that care should be exercised in providing new and improved machines to get the greatest benefit from the high speed steel that these machines be only introduced in such places where their full benefit can be utilized. For instance, if we have in a large machine shop an old wheel lathe which will stand the work at a slow rate of speed, and perhaps the tool is valued at $2,000, it would be good economy if that tool could be utilized all the time, to pay $10,000 for a high speed extra heavy machine in which the parts might be turned at the speed which has been represented here—three pairs in an hour. On the other hand, if this $2,000 machine is located in a small shop where there are only a few tires to be turned, and the machine is not in operation more than half or one-third of the time, it would not be good economy to throw away that machine and expend $10,000 to buy one of the high speed machines. It would be better economy to pay a little more time to the workman and do a little less work. I think these matters should be looked into carefully, and that eventually the full benefits of the improved steel will result to the benefit of the railroads.

THERE IS A GOOD TIME COMING.

The assurance that this country is being favored with bountiful crops has already put new life into commercial enterprises. The factory and the transportation system are among the first to be stimulated to new and stronger activities. It would require considerable time and space to enumerate the industries of all kinds that have increased their forces and reopened their plants within the last few weeks. To the average railroad mechanic there is nothing that interests him so much as to learn that railway shops are again opening up and those which had not closed are adding to their present force gradually. Notwithstanding the fact that this is a national campaign year, the roads have the promise of a season of heavy traffic and shops are likely to be running full force before the campaign is over.

Reports from division points indicate the re-employment of many train crews and hundreds of shop men. The RAILWAY JOURNAL is pleased to record some of the most important of the latter which have been brought to our attention. Notice has been posted in the shops of the M. K. & T. at Parsons, Kan., that the plant will be operated again on the nine-hour-per-day system, which also means hundreds of men are to be re-employed. Several hundred cars and about 150 engines are awaiting repairs. The car shops at Sedalia, Mo., were also reopened.

Orders were given on the Clover Leaf that beginning July 1st the shops at Frankfort, Ind., should be reopened, giving employment to about 1,200 men.

It is estimated that the Illinois Central has put back to work about 5,000 men at its numerous shops, all within the last few weeks.

The other Harriman lines have re-employed thousands of their old men, also since July 1st, and Mr. Harriman has also authorized the resumption of work on the Union Pacific's new shops at Omaha. This alone means the expenditure of several hundred thousand dollars.

During the past few weeks the Baldwin Locomotive Works at Philadelphia re-employed about 1,000 men and it is understood that many more will be placed to work before fall. This plant usually employs about 20,000 people.

Report coming from Tacoma, Wash., states that on July 8th the Northern Pacific shops at that point re-employed 400 additional men, most machinists and blacksmiths, on full time. This makes about 900 workmen now at that plant.

On July 9th the Rock Island shop force at Shawnee, Okla., was increased by about 400 men, and it is understood that nearly that many more will be added within a few weeks.

These incidents given out are only a few from all parts of the country, but they indicate that thousands of shop and train men are being re-employed all over. The steel industry has been encouraged by new orders and better conditions all round. A brief survey of the flattering shop conditions of this country will assure anyone that increased business must follow in the manufacturing field and with transportation lines.

O'NEILL RAPID FLUE WELDER.

The RAILWAY JOURNAL is indebted to Mr. R. J. O'Neill, master boilermaker of the Colorado & Southern at Denver, for the accompanying illustration of his rapid flue welding machine. Mr. O'Neill claims that his machine will scarf, weld, swage and spread or fit flues to holes so that no shimming or lining-up

is necessary. It operates at the rate of 300 revolutions per minute and is limited only by capacity of furnace for heating. It is easily operated and can be adjusted from two-inch to four-inch flues in a few minutes. Mr. O'Neill is one of the brightest mechanics in the railway boiler shops of this country and has made a close study of handling flues. Anything that he endorses in this line should be considered practical and modern.

GIGANTIC STEEL COMBINATION.

A press report from London, England, under date of July 10, announces that plans have been made for the combination of the leading steel companies of Europe and America, which of course embraces practically all the big concerns of the world. The report is given considerable credence by the press of this country. The report, as published in the Chicago Tribune, states that

"for months plans have been on foot to bring into harmonious combination the steel interests practically of the whole world, and the announcement of the Iron and Steel Trades Journal, which is considered authentic, marks an epoch in vast trust making. The new combine primarily will seriously threaten the British industry which is not included in the trust and already is seriously threatened by the foreign invasion. The international agreement will control about three-fourths of the world's output of steel."

It is believed that the United States Steel Corporation has inspired this great combination. The world's annual production of steel in 1907 was about fifty million tons, and of this the new combine will control by agreement about thirty-five millions, which practically precludes the possibility of a small concern doing business.

The London report has the consolidation figured out as follows:

United States—Represented by the great steel corporation, which controls the American output of 23,000,000 tons and has the mammoth capitalization of $1,000,000,000.

Belgium—Represented by that country's larger plants. Belgium's annual output is about 1,250,000 tons.

Russia—Three great concerns of the czar's empire which has made great strides in the industry, spurred by a wonderful increase in the demand for steel products. Russia's output is about 2,000,000 tons.

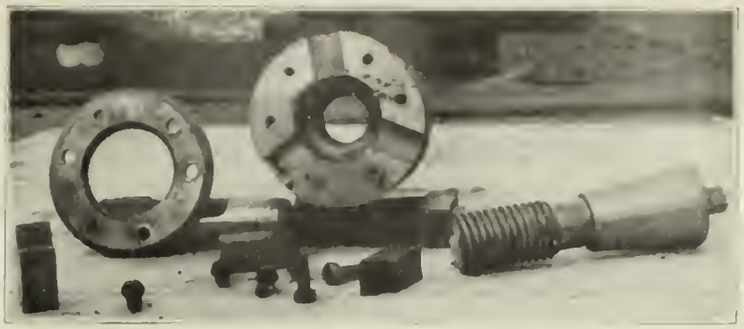
Germany—Four of the largest manufacturers of steel, producing a great part of the empire's annual output of 11,000,000 tons.

HEIDLER LATHE CHUCK.

Mr. G. W. Keller, general foreman of the Norfolk & Western at Portsmouth, O., has favored us with the illustrations and description of a handy lathe chuck recently designed by

HEIDLER LATHE CHUCK.

Mr. J. T. Heidler, roundhouse foreman at that point. This has proven to be a very useful tool, especially for facing metallic packing and small rings of any description. It is cheaply made and is well worth more than its cost of construction. It has proven a handy device in the shops at Portsmouth. The illustrations speak for themselves as to method of construction.



HEIDLER LATHE CHUCK—DISSEMBLED PARTS.

VALUE OF FLEXIBLE STAY-BOLTS.

BY B. E. D. STAFFORD.

Flexible stay-bolts of various designs are now being used by many railroads for the purpose of determining their value to prevent cracked fire sheets and reduce stay-bolt breakages. Installations of these bolts are usually made to cover the area known as the breaking zone of the rigid stay, which in the majority of cases extends below the crown sheet line, extending from three to five horizontal rows across the fire sheet, and diagonally downward on the front and back end of the side sheet; although, in several instances, we find full installations on side, back head and throat sheet, leaving the radial or crown stays rigid as heretofore. The general results obtained covering all conditions of service are very satisfactory, in proportion, however, to the distribution of the bolt over a given area, and to the service of each particular bolt in use.

As to cracked sheets, the results are largely in favor of the flexible stay as a means to compensate for sheet expansion, regardless of the design of the bolt used, thereby pointing to the fact that the buckling, bending and cracking of fire sheets, when the latter are allowed to take their natural course of expansion, is reduced to a minimum or entirely eliminated, according to the completeness of the flexible installation.

Inasmuch as the present fire box was not designed particularly for flexible stay-bolts, the use of flexible stay-bolts in all types of fire boxes, covering the side, back head and throat sheets, has effected a remarkable service showing, in comparison with that shown by the rigid or ordinary stay-bolt. This points conclusively to the fact that in the staying of locomotive fire boxes the flexible stay-bolt should be earnestly considered, in its general makeup, as a vital factor accomplishing a more perfect condition, not only to afford mechanical means to provide for the expansion of the fire sheets, but to insure an absolute sense of security and to overcome the stresses involved with much less resistance than the rigid or ordinary stay-bolt.

Extracts from the report of the flexible stay-bolt committee, appointed by the Master Mechanics' Association and rendered at the convention, held at Atlantic City, 1906:

"Regarding the opinions of the users of flexible bolts as to the value resulting from a change from the rigid to the flexible form, the verdict is greatly in favor of the change, fifty per cent of the replies received being in the affirmative and including the largest users; the remainder, excepting one, answering in a manner that could not be interpreted as either for or against their value."

"In conclusion, your committee believes that flexible stay-bolts are giving very satisfactory service where the design is good and the conditions favorable. The only unfavorable conditions which seriously affect the service are bad workmanship and water containing hard scale-forming material; the first condition being less serious than the second."

"It has been shown that there is a definite movement of the sheets, of small amount, from the cold boiler to the working pressure temperature and that the movement has an effect upon the life of the bolt. Any small change of temperature, caused by the operation of the injector, reduced steam pres-

sure, or the opening of the fire door, produce a movement of the smallest amount."

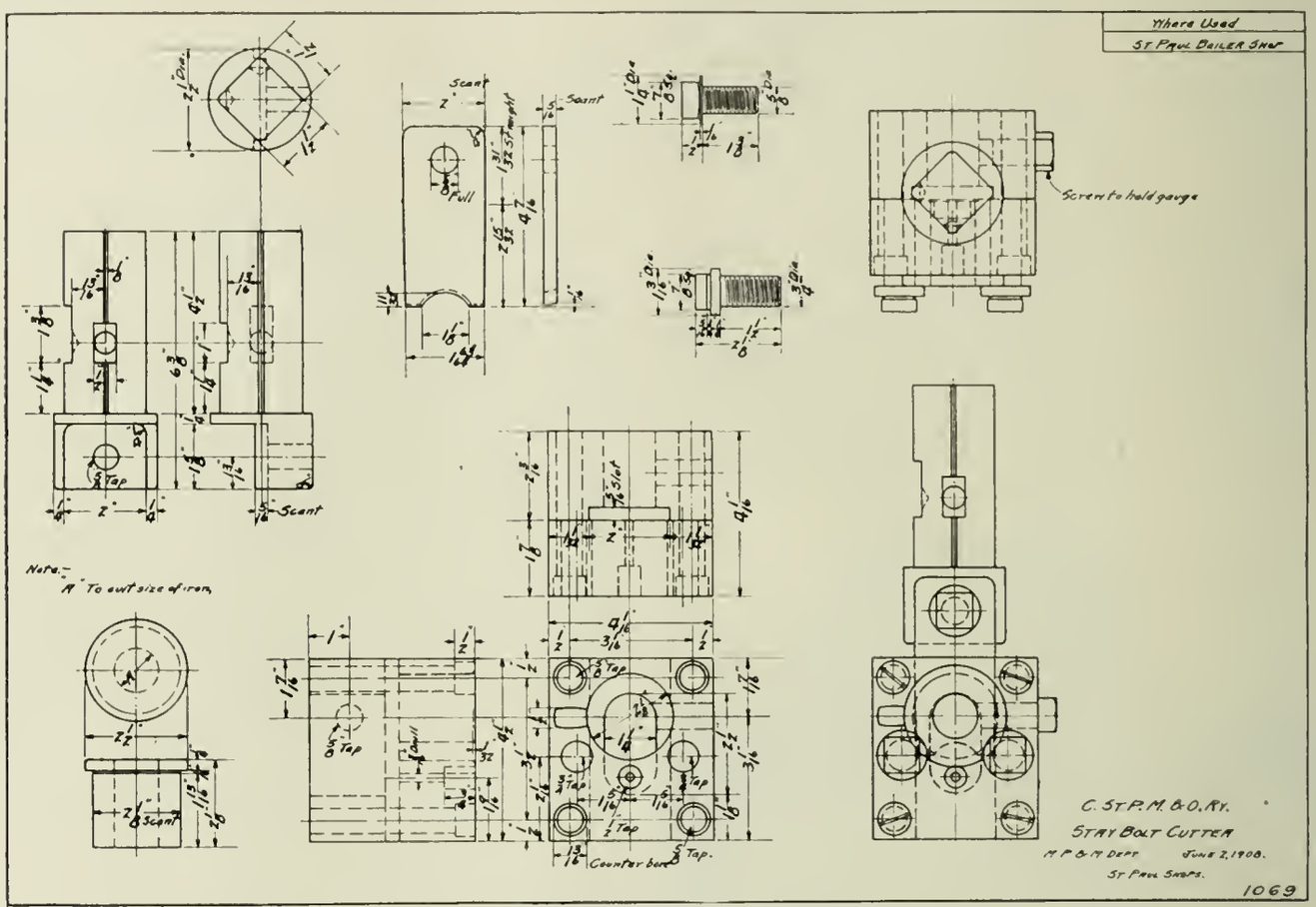
"Your committee believes that it is wise to substitute flexible bolts at the points where experience shows the greatest breakage of rigid ones, and that no hard or fast rule can be laid down to show where this occurs, as this location is affected by the design of the boiler; that the flexible bolt must be one designed to minimize the difficulty from incrustation; that it must be of proper strength, and with sufficient clearance in its fittings; and finally, that the design should, if possible, be one to facilitate examination. With these conditions observed, your committee is convinced that the flexible bolts will give great relief to the present troubles."

particularly the apprentices, during the fall, winter and spring seasons. Mr. H. D. Kelly, who has charge of the apprentices at the shops, gave a list of topics to be treated at the semi-monthly meetings—that is, meetings every two weeks. A regular program is announced several weeks before the opening of each season. Several persons have been selected to talk to the men as will be observed in the following program:

September 10—H. T. Bentley, assistant superintendent motive power and machinery.

September 24—Steam: Its fundamental properties; its application. How energy is transferred from coal to the driving wheels.

October 8—Steam Pump.



BORNEMAN STAY-BOLT CUTTER.

BORNEMAN STAY-BOLT CUTTER.

Mr. Louis Borneman, master boilermaker of the Chicago, St. Paul, Minneapolis & Omaha at St. Paul, Minn., has favored the Railway Journal with description and drawing of his valuable stay-bolt cutter. The principal claims for the device are that it will cut off stay-bolt from the bar in lengths required to apply in fire box, thus making the bolt absolutely square on end for fire box side. The blade of knife is 5-16 of an inch thick and if tempered properly does not break. By removing the stem on the punching machine and die block, the stem of the stay-bolt cutter and die blocks are placed in the same position, with only a few moments' time for the change. Mr. Borneman claims that it is one of the best devices he has even seen used for the purpose. There are different sizes of dies for the different sizes of iron; the die block being in two sections as shown in cut. In the event any part is broken or worn out it can be replaced without making whole new block. The blade, with half round cutting edge, beveled on one side, is made to take all sizes of iron.

EDUCATING SHOP MEN.

During a recent visit to the Chicago & Northwestern shops at Chicago, the writer's attention was called to a method of introducing new ideas into the shops and educating the shop force,

October 22—J. W. Kelly, foreman boiler shop, "The Locomotive Boiler."

November 5—The Steam Turbine.

November 19—Boiler Repairs: Heavy, General and Light.

December 3—Electricity: Its discovery; its fundamental units; its application, and its future.

December 17—Electric Motors and Dynamos.

January 7—Electrically driven shops. Electricity as applied to railway shop operation. Mr. E. B. Thompson, assistant superintendent motive power and machinery.

January 21—Transmission of Electricity as Power.

January 28—Mr. J. C. Little, mechanical engineer.

February 4—Electricity versus Steam in Railway Transportation.

February 18—Railway Shop Outlay.

March 4—Mr. J. McNally, foreman blacksmith shop, "The Railway Blacksmith."

March 18—Welding.

April 1—Gas Engines.

April 15—Steel: Making of Open Hearth Bessemer Process.

April 29—H. D. Kelley, Air Brake, "E. T." Equipment.

May 13—Valve Motion.

May 27—Gas Producers.

There will also be short talks on the following subjects: "Cutting Speed of Tools," "Electric Headlights," "Slipping of Driving Wheels," "What Should Be the Proportion of the Cylinder to the Grate and Heating Surface?" "How to Adjust Eccentries when Wheels are not under Engine."

TOPICS FOR GENERAL FOREMEN'S ASSOCIATION.

The following is the list of topics and committees for the next annual convention of the International Railway General Foremen's Association:

No. 1. Air Brake Equipment, Including Pumps and all Class of Service. C. H. Voges, chairman; E. R. Berry, E. C. Hansé, T. J. Finerty, D. H. Kelly.

No. 2. Coaling of Engines With Coaling Machines. W. H. Clough, chairman; T. H. Ogden, W. H. Kidneigh, J. Maltby and L. H. Bryan.

No. 3. How to Obtain the Quickest and Best Routine of Handling Engines. Figures as to time and cost to be submitted with each paper. T. H. Ogden, chairman; R. W. Burnett, J. J. Houlehan, W. R. Meeder, A. O. Berry.

No. 4. Advisability of Installing Hot Water Washout and Filling Systems. E. A. Murray, chairman; C. H. Voges, F. Bauer, R. W. Woods, L. H. Bryan.

No. 5. Best Method of Getting the Work through the Shop with Economy and Dispatch. W. C. Stears, chairman; G. F. Dick, A. F. Bradford, F. W. Rhuark and D. E. Barton.

The following subjects were selected for topical discussions and no written report:

Best Method of Getting at Cost of Repairs.

What Class of Repairs Should Be Made at Outside Points When Facilities Are Lacking?

TEST OF FALLS HOLLOW STAY-BOLT IRON.

Mr. C. M. Walsh, president of the Falls Hollow Stay-bolt Co., has favored the RAILWAY JOURNAL with a report of the results of vibratory tests of eight samples of Falls Hollow stay-bolt iron at the Purdue university on May 7, last. It is as follows:

No.	Tension load lbs. per sq. in.	Revolutions per minute.	No. of Revolutions to rupture.
1	4,000	100	10,188
2	4,000	100	13,123
3	4,000	100	8,339
4	4,000	100	9,363
5	4,000	100	8,868
6	4,000	100	10,880
7	4,000	100	11,888
8	4,000	100	5,318
		Average.....	9,746

The tests were made on an Olsen Stay-bolt machine in accordance with the specifications recommended by Committee on Stay-bolts of the American Society for Testing Materials.

These specifications include the following tensile strength:

Not less than 48,000 lbs. per sq. in.

Per cent of elongation in 8 in. not less than 28.

Per cent of contraction of area not less than 45.

Must stand 6,000 revolutions when one end is fixed and the other end (8 in. from fixed end) is moved in a circle of 3-32 inches radius, while the bolt is under a tension load of 4,000 lbs. per sq. in. The bolts were threaded with standard stay-bolt dies, 12 threads to the inch.

Certified to by W. K. HATT,
Professor of Civil Engineering and Director.

OPPORTUNITIES FOR FOREIGN TRADE.

The following information has been furnished the RAILWAY JOURNAL from the Bureau of Manufactures at Washington, D. C., from which further information may be secured:

An American consul reports that a concession has been granted by one of the Mexican States to a local business man for a foundry to be located in that region.

The Monitorul Oficial, of Bucharest, Roumania, announces that a grant of privileges for the duty-free importation of metal-working machinery, 840 tons of bar iron and 1,350 tons of sheet iron has been given to The Metalurgia Romana (Iosta Lemaitre) Company at Bucharest.

One of the American consuls in a European country reports that requests have been made at the consulate for offers in first-class steel by two local firms. One of these concerns desires the article for the manufacture of machinery and the other more particularly for plates used at crossing of rails and switches.

The Gaceta Oficial of Habana, Cuba, in recent issues contains notices of concessions granted to certain individuals for the construction of wharves and piers in various harbors of the island. Copies of the complete announcement can be obtained by interested parties from the Bureau of Manufactures.

A report has been received from an American consulate in Italy, stating that a local business man has opened an office in that district as the representative of an Italian metallurgical house, and that he would like to hear from American houses interested in selling valves, pipes, and other fittings and appliances or machinery.

An American consular officer has forwarded a copy of plans, showing the dimensions and materials, condition of delivery, etc., of passenger coaches, mail and baggage cars, and freight cars to be purchased in the near future for use on the lines of a state railway in an European country. This copy may be obtained by builders of such equipment from the Bureau of Manufactures.

An American consular officer in an European country reports that there appears to be a market in his district for the sale of motor boats and engines. Engines of 12 to 14 horsepower are preferred, and firms in quoting should give full particulars regarding speed, size, cost of operation, prices f. o. b. New York, terms of payment, etc., otherwise the opportunity for a sale is often lost in the time consumed in correspondence to obtain this information.

A German merchant writes the Bureau of Manufactures that he intends to import into Germany special machinery, apparatus, etc., as well as raw materials, such as pig iron, copper, etc., and requests to be put in touch with American concerns desiring to export these articles. He states that he has been in business in Germany for twenty-five years, and as a former director of large works is well known among business men and consequently in a position to sell large quantities.

Consul-General Henry B. Miller, of Yokohama, Japan, reports that it is announced that the department of communications has granted a charter to the Muhashi Electric Railway Company to build a line from Tengen-ji Bridge, in the Hiro-o suburb of Tokio, direct to Hiramma, with branch lines to Chofu-mura and Kamada. It is stated that the line will be built in accordance with the private railway law, and that consequently it will be planned on a much larger system than that followed in the case of ordinary electric railways.

An American consul in southern Europe in reporting on the sale of motor boats in that region says that the motor boat of the future in those waters will be of steel construction, and a big business awaits the American maker of steel boats who will meet the demands of the market. He forwards the name of a local motor-boat manufacturer with offices in the city in which he is located who solicits correspondence from American firms looking toward the opening of sales of American steel boats, and the manager of the concern in question is confident that some business could be done in both power and pleasure boats.

An American consul in an Italian city reports than an inquiry has been received at the consulate from a local firm of prominent dealers in machinery requesting to be placed in communication with American manufacturers of iron-working machinery, particularly those for making household utensils. The same firm also inquires about American power engines using the poorest grades of the heavy mineral oils, for which there appears to be a good opportunity to secure a market. Price lists of electrical apparatus for lighting purposes, especially electric lamps, are also desired by the firm in question. Correspondence may be conducted in English.

Consul-General William H. Michael, of Calcutta, reports that the measure passed by the Calcutta council for the erection of a steel tank to cost $2,305,958 having been approved by the lieutenant-governor of Bengal, its erection is now assured, and proposals for bids for its construction will doubtless be issued very soon. (The consul-general will forward copies of these at the first opportunity.) One of the disadvantages under which American builders will labor is the short time usually given by the corporation and governor of India between the issuance of proposal for bids and the opening of the same. Copies of a former report from the consul-general, giving a description and other information concerning this tank, were furnished to manufacturers by the Bureau of Manufactures, and as there does not seem to have been any changes made in the interior, no time need be lost in this connection.

P. J. CONRATH.

The new president of the International Master Boilermakers' Association, Mr. P. J. Conrath, has been in the harness as a boilermaker foreman for upwards of twenty years. He served his apprenticeship when quite young and has since been with the Wabash as journeyman, the Illinois Central as assistant foreman and as foreman, with the American Boiler Works at

P. J. CONRATH,
PRES. INTERNATIONAL MASTER BOILER MAKERS' ASSOCIATION.

Chicago, and with other companies. For the past three years he has been general foreman boilermaker for the Missouri Pacific, with headquarters at St. Louis. Mr. Conrath is considered one of the ablest men at the trade in this country and is an all-round hustler for the best there is in the mechanical field.

BOILER CONSTRUCTION.

All boilermakers who wish to get the best work on locomotive boiler construction can secure through the RAILWAY JOURNAL, a copy of Frank B. Kleinhans' new book on "Boiler Construction," a book of over 430 pages, handsomely illustrated and cloth-bound. The book contains 334 clear cuts and five pages of large plates, illustrating different forms of locomotive boilers. There are 75 pages devoted to laying out and about 50 pages devoted to tables, rules and other valuable data. We have arranged to secure this book for our readers at cost—$3.00—which will be sent postage paid. It is the most complete and up-to-date work of its kind we have been able to secure for our readers, and we think it is about what every aspiring boilermaker needs. A boilermaker of forty years' experience writes: "I would not take $10 for my copy if I could not replace it." We also take orders for the

WALSCHAERT LOCOMOTIVE VALVE GEAR.

This valuable book of 150 pages, finely illustrated, should be in the hands of every railway engineer, fireman and mechanic as well as foreman. It is devoted exclusively to the above system of valve motion. The book contains information that is put forth so simply that anyone can easily understand it. Its illustrations and diagrams alone are worth more than the price, $1.50, also "Locomotive Catechism" for $2.50.

CONSTRUCTION AND IMPROVEMENTS.

It is stated that the Santa Fe is figuring on a 25-mile extension to Markham, Tex.

The Mexican Southern is building a branch line between Tehuacan and Esperanza, Mex.

The Oklahoma Central, of which Dorset Carter is president, has planned for extensions this season.

There is a plan on foot for double tracking the Intercolonial between Moncton, N. B., and Halifax, N. S.

The Idaho Northern has a large force grading a 33-mile extension between Enaville, Idaho, and Paragon Gulch.

The Grand Trunk Pacific's eastern line has been constructed to Moncton, N. B., the eastern terminus of the road.

The Beaumont & Great Northern has completed its new line between Trinity and Livingston, Tex., a distance of thirty-three miles.

About twenty miles of the Southern Railroad of Texas have been completed. H. J. Bradshaw, of Henrietta, Tex., is general manager.

The Union Pacific has resumed work on its North Platte-Northport extension in Nebraska and the Athol Hill cut-off in Colorado.

The El Paso & Kansas City Short Line is being promoted and surveys are soon to be made between Quanah and El Paso, about 600 miles.

The Goose Lake & Southern is the name of a line being surveyed for the Southern Pacific from Goose Lake, Cal., to Alturas, about 405 miles.

The Mesa Valley & El Paso has been organized with office at El Paso, Tex., to build from the latter point to Las Cruces, N. Mex., about forty-five miles.

H. L. Miller, of Russell, Kan., is president of the Winnipeg, Yankton & Gulf, a proposed line to be built from Winnipeg to a point on the Gulf of Mexico.

The Denver & Rio Grande has completed double tracking between Florence and Canon City, Colo.; the latter point being where the road enters the Royal Gorge.

W. F. Hunt, of Roosevelt, Minn., is president of the Minnesota Air Line which is proposed to be built from Thief River Falls, Minn., to Roosevelt, seventy miles.

The Grand Trunk Pacific has let contracts for 100 miles of road from Prince Rupert, B. C., east, and contracts are being let for building about 200 miles from Wolf Creek west.

The Canadian government is aiding the Canadian Northern in its proposed extension to Ft. Churchill on Hudson Bay, about 490 miles. The company is at work on this extension.

John T. Witt, chief engineer of the Dallas & Northwestern, is locating a line between Dallas and Benjamin, Tex., about 250 miles. It is believed that the road will soon be built.

The Interoceanic Railroad of Mexico, running from Mexico City to Vera Cruz, is to be widened to a standard gauge. At present it is the longest narrow gauge road in Mexico.

The Southern Railroad has formally taken charge of the Southwestern Railroad Company, the Black Mountain Railroad and the Holstein River road, all in upper East Tennessee.

The Nezperce & Idaho has been incorporated to build from Nezperce, Idaho, to the Northern Pacific, about forty miles. Z. A. Johnson is president. Work is to begin at Dublin, Idaho.

The St. Joseph Belt Railway Company, of St. Joe, Mo., has been chartered by S. S. Brown, P. P. Welty, Louis Siemens and other St. Joe men. It is to extend from St. Joe to Sulphur Springs, Mo.

Construction work has begun on the Altus, Roswell & El Paso, of which Edward Kennedy, of Houston, Tex., is president. The road is to be built this year between Lubbock, Tex., and Roswell, N. M.

The Northern Pacific has completed its double track bridge over the Columbia River at Vancouver, Wash., near Portland, Ore. The structure cost about $2,000,000 and about 15,000 tons of steel was used.

Contracts amounting to $10,000,000 have just been awarded by the Lackawanna Railroad for the new cut-off between Lake Hopatcong and Delaware Water Gap in New Jersey. The line will be about twenty-nine miles long.

Mr. C. S. Young, chief engineer of the Missouri, Oklahoma & Gulf, states that the road is to be built soon to Sherman, Tex., from its present terminus on the Canadian River in Oklahoma. Wm. Kenefick of Kansas City, is president.

The Associated Press reports state that the Guayaquil-Quito Railroad has just been completed in Ecuador, S. A., connecting Quito, the capital, with Guayaquil, the leading port on the Pacific coast. The road was formally opened on June 25.

The Texas Railroad Commission announced that during the fiscal year ending June 30, last, there were 319.88 miles of new road constructed in that state. Texas now has 12,895.44 miles of steam road, not including tram roads, interurban lines, etc.

C. S. Cleaver, of La Porte, Tex., is vice-president and general manager of the Port Arthur-Houston Short Line, which he is building between Port Arthur and Houston, Tex., about eighty-five miles. He is quoted as saying that contracts have been let for the work.

The Vera Cruz Terminal Co., of Vera Cruz, Mex., has let the contract for extensive construction work at that point, involving an expenditure of about $1,200,000. A large terminal union station is one of the buildings to be erected. R. Weiser is chief engineer.

The Canadian Pacific will have its line double track between Winnipeg, Man., and Ft. William, Ont., 420 miles, by September. The company recently opened a new line between Sudbury and Toronto, which shortens the road between the latter point and Winnipeg, about sixty miles.

The Pan-American road, which has been building in Southern Mexico, was completed to the Guatemala border on July 1, and the president of that country announces that the road will soon be extended through Guatemala. At present Suchiate, Mex., is the southern terminus.

President L. S. Berg, of the Mobile, Jackson & Kansas City railroad, announces that the plans are completed for extending the road northward to the Ohio River and southward to New Orleans. He said that the extension north would be made first and the road will probably reach the Ohio River at Thebes.

A report from Hobart, Okla., says that material is already arriving for the extension of the Rock Island from Mangum, Okla., to El Paso, Tex. Construction gangs are posted all along the proposed right of way. The preliminary survey has already been made, part of the grade has been finished and the construction train is in the yards ready to lay steel as soon as the rails arrive.

A. E. Stillwell, president of the Kansas City, Mexico & Orient, has announced in London that the Mexican government has granted the company a lease of the harbor of Topolobampo, which is the western terminus of the road, for ninety-nine years, and that the Hamburg-American line of steamers had agreed to operate a line of steamers from that port to the Orient, and that their steamers from Central America would call there.

The Mexican Herald quotes J. M. Neeland, the general manager of the Pan-American Railway, as stating that extension work on the line would now be continued actively until connection with the Guatemala Railway is completed. He is also resuming negotiations looking toward the beginning of construction on the new railroad which is to cross from the Gulf of Tehuantepec to the town of Campeche, connecting the Pan-American and the united railways of Yucatan.

According to the report of the minister of public works, there were added to the railway mileage of Brazil last year the following extensions, in kilometers (kilometer=0.62 mile): Ceara, Mirim, 11; Baturite extension, 20; Great Western, 50; Victoria-Minas, 64; Central of Brazil, 40; Goyaz, 30; Bauru-Corumba, 110; Sorocabana, 97; Sao Paulo Rio Grande, 131; C. Auxiliare Chemins, 148—a total of 701 kilometers. These 435 miles are scattered over the entire country, and represent general development rather than any particular project. The connecting of the Sorocabana and Sao Paulo and Rio Grande systems and the work on the railway to Corumba represent the most extended work now in hand.

MECHANICAL NOTES.

The Wabash-Pittsburg Terminal will build new shops at Rook, Pa.

The D., L. & W. has ordered twenty-six cars for passenger equipment.

The Santa Fe has increased its shops and roundhouse at Chanute, Kan.

The Eastern British Columbia Railway has decided to order two locomotives.

The Canadian Pacific will expend about $20,000 on shops at Saskatoon, Sask.

The Delaware, Lackawanna & Western will soon order 100 refrigerator cars.

The Iowa Central has been in the market for 200 box cars and 250 gondolas.

The Northern Pacific has ordered twenty-nine cars for passenger equipment.

According to the press reports, the Erie is asking bids on fifteen locomotives.

The San Antonio & Aransas Pass is reported to be on the market for 500 box cars.

The St. Louis, Brownsville & Mexico has placed orders recently for heavy shop tools.

The Western Allegheny has plans for cars and locomotives which it proposes to order soon.

C. V. De Jong has been made general manager of the Danville Car Co., of Danville, Ill.

The Canadian Pacific has let the contract for twenty locomotives for delivery early this fall.

The Chicago, Milwaukee & St. Paul is to order 2,000 more box cars for its Pacific Coast line now being built.

It is reported that the Pittsburg & Lake Erie is to equip its line from Pittsburg to Beaver Falls for electric power.

The Northern Pacific is building division shops and a twenty-stall roundhouse at Sandpoint, Idaho, at a cost of $30,000.

The Seattle Car Co. of Seattle, Wash., has received orders for twenty box cars from the Sun Ning Railway of China.

The Siamese State Railways is in the market for a number of freight and passenger cars, also for two passenger locomotives.

The receiver of the International & Great Northern has placed orders for ten locomotives with the American Locomotive Company.

Report has it that the American Locomotive Company will purchase some extensive shop tools and machinery for the plant at Pittsburg.

The Traveling Engineers' convention is to be held at the Hotel Cadillac, Detroit, beginning August 25. A large attendance is expected.

A steel plant at Monterey, Mex., has received an order for 20,000 tons of rails from the National Lines of Mexico, aggregating a cost of about $1,800,000.

The Lehigh Valley Railroad Company has completed arrangements for operating experimentally the Gas electric motor car made by the General Electric Company.

The Schoen Steel Wheel Company of Pittsburg, has sold its plant at McKees Rocks, Pa., to the United States Steel Corporation. The consideration is said to be $3,000,000.

The Pennsylvania, the Philadelphia & Reading, the New Jersey Central, Norfolk & Western, and B. & O. are offering old rails and miscellaneous scrap iron for sale.

Messrs. W. D. Sargent, George M. Judd and others, of 32 Cortland Street, New York, have organized the European Brake Shoe Co., with a capitalization of $500,000.

Orders are to be placed soon for rolling stock and other equipment, by the Kansas City, Ozarks & Southern, of which Mr. J. B. Quigley of Kansas City is general manager.

No railway blacksmith foreman should fail to attend the convention of the International Railroad Master Blacksmiths' Association to be held at Cincinnati, beginning Tuesday, August 18.

France is making rapid progress in the manufacture of steel, having produced 2,677,805 metric tons of ingots in 1907 as compared with 2,436,322 metric tons in 1906 and 2,240,824 metric tons in 1905.

Mr. W. J. McKeen, who resigned as superintendent of motive power of the Union Pacific, is to assume executive charge of a large plant at Omaha, Neb., which is to manufacture motor cars for steam roads.

The Blue Island Car & Equipment Co. has arranged to build car repair shops at Kansas City, Mo. The plant is to be operated under the name of the Sheffield Car Equipment Co. F. H. Niles is president.

The Pacific Coast shops of the Chicago, Milwaukee & St. Paul are to be located at Tacoma, Wash. The company is to expend upwards of $1,000,000 on shops and other terminal improvements at that point.

It is stated that the Delaware, Lackawanna & Western will purchase about $12,000 worth of new tools for its shops at Keyser Valley. The company has also been asking for bids on tools for the shops at Scranton, Pa.

The Lidgerwood Mfg. Co., of New York, has issued a handsomely illustrated catalogue, descriptive of its cableways and equipments in connection with them. The work illustrates various views of cableways in actual operation.

The Idaho & Washington Northern has contracted for modern shops and machinery at Spirit Lake, Idaho. The plant is to cost about $100,000 and will consist of a main shop 70 by 210 feet and a smith and boiler shop 40 by 97 feet, also smaller buildings.

The Norman W. Henley Publishing Company of New York, has just issued Robt. H. Blackall's up-to-date Air Brake Catechism, which contains 2,000 questions with their answers. The work has 400 pages, is finely bound and is well worth the price asked—$2.00.

Additional copies of specifications and forms of tender for the supply of fifty goods wagons for the State railways referred to in Foreign Trade Opportunity No. 2354 have been received by the Bureau of Manufactures, and may be obtained by interested firms.

During the year 1906 and the spring of 1907, 481,882 poods of ferromanganese were shipped to the United States from Mariupol, Russia. The demand in the United States having diminished, and prices having fallen heavily there, the export of this article ceased completely.

The Delaware & Hudson has plans and has recently purchased grounds for large modern shops at Watervliet, N. Y. The plant will cost nearly $2,000,000 and will be capable of repairing locomotive and car equipment. The company proposes to erect many new dwellings for its employes near the shops.

Consul Alfred A. Winslow of Valparaiso, Chile, reports that the Compania Cervecera de Valdivia, at Valdivia, Chile, is about to put in an extensive electrical plant to be driven by water power. It is estimated to cost $547,500 gold, and will supply power for the company's works, for lighting the city and for other plants. It is the intention to complete the work by the end of the year.

A report has been received from an American consul in the West Indies stating that construction on a group of public buildings is to be begun at an early date, and that American contractors, builders, and dealers in building material will be tendered an opportunity to submit bids for the proposed works on the same footing as others. The designs and bills of quantities for the proposed building, to be executed in reenforced concrete, are in the hands of an official whose name is furnished, and any firm desiring further particulars or to submit bids should address this official. The first building to be erected, work on which will be started at the earlist practicable date, will involve an expenditure of about $200,000.

Announcement is made that the Cutler-Hammer Mfg. Co. of Milwaukee, makers of electric controlling devices, has just completed arrangements whereby this firm will be represented on the Pacific Coast by Otis & Squires, of 111 New Montgomery Street, San Francisco. A large stock of standard Cutler-Hammer controllers will be carried by Otis & Squires, enabling them to make prompt delivery of apparatus. Mr. A. W. Vinson, who has for several years been connected with the Engineering Department of the Cutler-Hammer Mfg. Co., has been transferred to the office of Otis & Squires, where his services will be available to those confronted with problems of electric control which cannot be met by the use of standard apparatus.

Consul-General H. B. Miller of Yokohama, Japan, writes that it is impossible to ascertain the total imports into Japan of iron, machinery, etc., for military and naval purposes, but the imports of 488,434 tons of pig iron and steel, as shown in the succeeding statement, together with machinery made of iron and steel to the value of $7,084,470, indicates that the total consumption of iron and steel imported for all purposes will reach an amount between 800,000 and 1,000,000 tons per annum. This consumption, against the small production in Japan, shows the dependence of the country upon foreign imports of raw and manufactured iron products. Of the imports of iron and steel from the United States there was an increase of but 18 per cent in 1906, as compared with 1900, but the increase of imports of machinery of various kinds, made wholly or largely of iron and steel, was from $859,415 in 1900 to $2,601,146 in 1906, while imports from all countries combined increased from $2,566,664 in 1900 to $7,084,470 in 1906. This is a most gratifying showing for expansion of trade in machinery made of iron and steel, and it is largely along this line that American trade with Japan is likely to continue to grow.

FIELD FOR AMERICAN BRAKE SHOES.

Mr. William Whittam, Jr., formerly connected with the government service in Washington, offers suggestions for the introduction of brake shoes into Great Britain. He is quoted in the U. S. Consular and Trade Reports as follows:

"Railroads in the United States have neglected no opportunity to secure every means for economizing in rolling stock. The good and effective work done by their Master Car Builders' Association cannot be overlooked. With active committees that watch closely development of every kind, supported by the manufacturers of railway material, who specialize in every direction, they have largely succeeded in bringing about a much-desired reduction in the annual expenditures of railroads. Concentration of efforts have established standards for material. The time taken in replacing a worn-out brake shoe in the United States is only a part of a minute, while the changing of a brake in Europe takes many minutes. Altogether, there would seem to be an excellent opening for American enterprise in this direction. It is clear that a wonderful opportunity exists in Great Britain and Europe for the export of the American type of brake shoe. In Europe the solid shoe is common, yet this type became practically obsolete in the United States many years ago. With this solid shoe a waste of 15 to 20 pounds of material occurs, against a "scrapping" of but 6 to 7 pounds on the American plan."

TRAFFIC AND FINANCE.

August 4 is the day set for the sale of the Texas Southern at Marshall, Tex. The upset price of the road is placed at $225,000.

The Pennsylvania Railroad Company holds that the Hepburn law is unconstitutional on the ground that it is confiscatory.

A report from New Haven, Conn., under date of July 10, says: The sale by the New York, New Haven & Hartford Railroad Company of its holding in the Boston & Maine road, amounting to some 110,000 shares, to John L. Billard, a banker of Meriden, was consummated in Boston on June 30. The transaction was for cash.

The roads of Nebraska are producing figures to show that passenger rates and some freight rates are too low. The state commission is also trying to do some figuring to prove the opposite.

A traffic official of the Santa Fe who is familiar with the conditions in the west and in the central states, is quoted as saying that from all sections of the country the reports are that the farmers have never been in such good condition as at present, and their purchasing power has never been so great. Reports from manufacturers of agricultural implements emphasize this fact. The farmers are buying machinery and farm implements, and the manufacturers making such things are all doing a good business.

According to a new ruling made by the state board of health of Missouri, cuspidors are ordered placed at every seat and must contain, besides water, a specified amount of antiseptic. Bed furnishings in sleeping cars must be aired daily, water coolers cleaned at the end of each trip and receptacles where food is kept in kitchens treated to antiseptic baths each week. The new rules will be strictly enforced upon the railroad companies.

Mr. G. B. Stone, president of the Chamber of Commerce of Oklahoma City, and W. W. Bierce have gone to England to confer with a syndicate of capitalists relative to financing the Oklahoma & Texas road, which they propose to build from that city to Wichita Falls, Tex.

CHANCE FOR AMERICAN TOOLS.

A representative of the United States government writing from Milan, Italy, tries to impress upon American manufacturers the splendid field in northern Italy for tools made in this country. He says that the American machine tools costing more money and less assisted, secured a foothold in Italian territory by sheer weight of merit. The Italians recognized the superiority of the American tools, and the proof lies in the fact that on an average 70 per cent of the machine tools in the modern Italian shops are of American make. It is the writer's opinion that we should have sold more American machine tools than we have in northern Italy. Only a few agencies were equal to the occasion, and an unusual opportunity has been woefully neglected. Too many of our manufacturers have been put to sleep over specious arguments that only a foreigner can sell his goods abroad.

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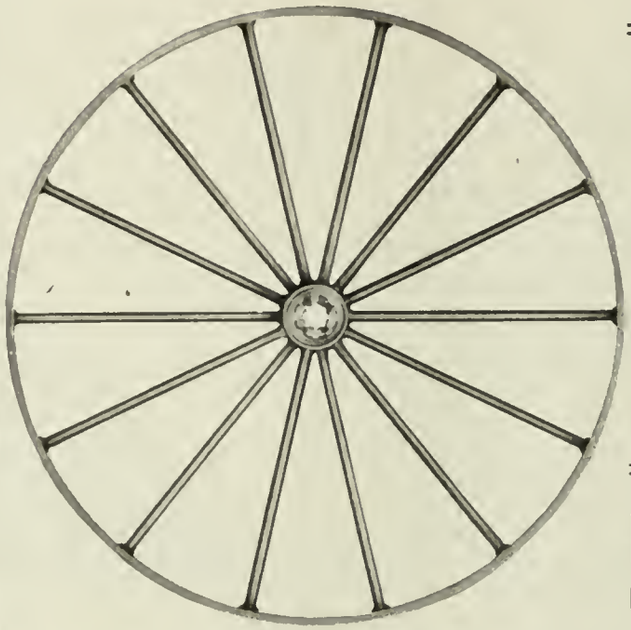

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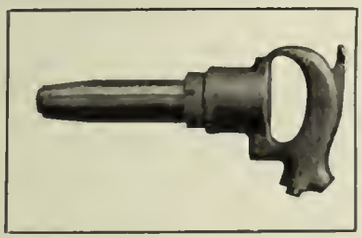

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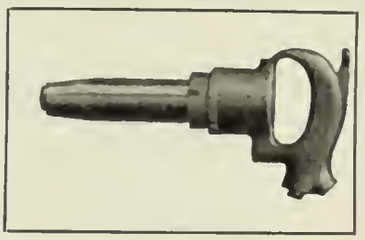

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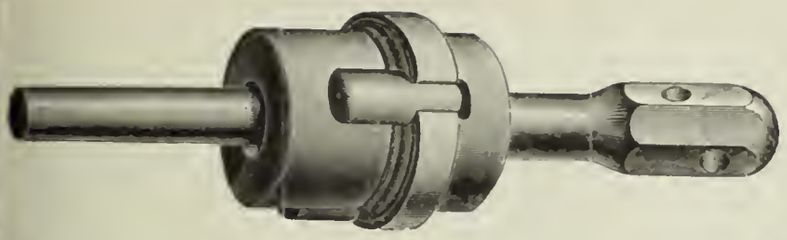

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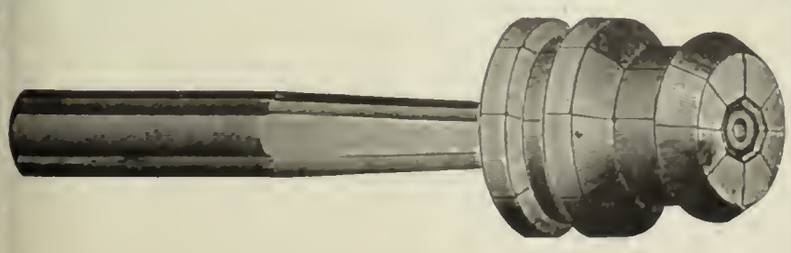

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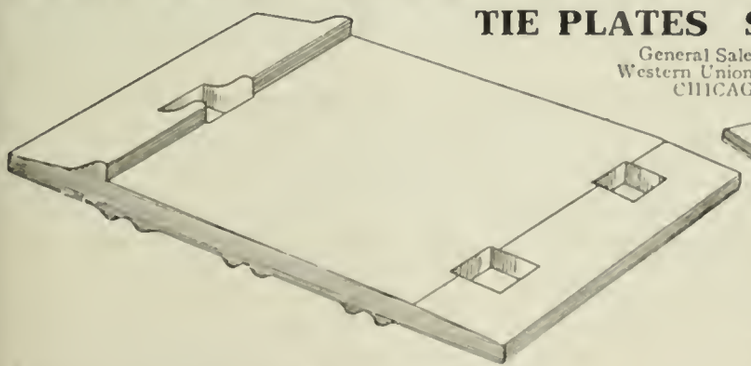

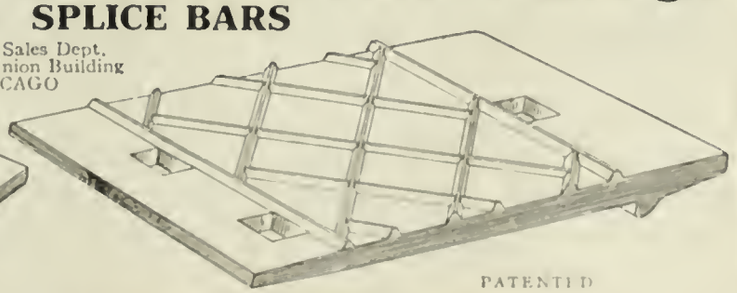

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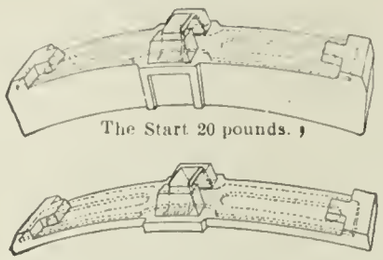

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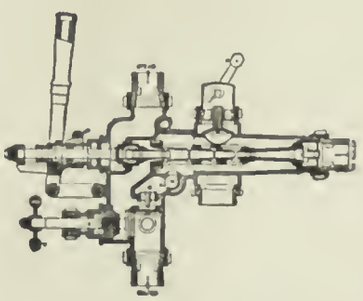

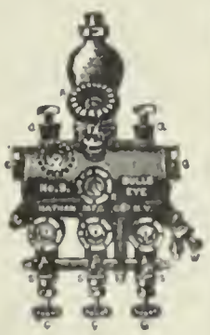

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Address all communications to
RAILWAY JOURNAL, 506 Royal Insurance Bldg., Chicago, Ill.
'Phone, Harrison 1006.

Entered as Second-Class Matter October 22, 1906, at the Post Office at Chicago, Illinois, under Act of March 3, 1879.

W. E. FAITHORN . . . . . Business Manager
E. C. COOK . . . . . Managing Editor

SUBSCRIPTION PRICE, One Dollar per Year, Ten Cents per Copy

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RATE INCREASE PROPOSITION.

There has never been a proposition before the public recently that has been so thoroughly discussed and denounced as the proposed increase of freight rates. From the time it was first announced early in the summer that the roads would likely increase freight rates this fall, there has been a universal protest from every quarter excepting from the transportation companies. It seems as though every little factory and merchant, and every commercial body, as well as trade associations, have been filing protests continuously. It now looks as though a general increase is hardly probable before the first of the coming year, if then.

In another column of this issue is an article from Mr. D. J. Coffey, who is connected with a large concern that ships extensively, in which he sets forth the advantage to the country in permitting roads to increase freight rates. Mr. Coffey's argument is logical. His paper is worthy of perusal and study.

President McCrea of the Pennsylvania made public last month a letter he had written to the Chamber of Commerce at Cleveland, O., in answer to a request for information relative to the proposed increase in rates, in which the writer says:

"There has been at no time any intention, so far as we are advised, of making a general increase in all rates of freight, but consideration has been given to the proposition that an advance might be made in the 'class rates.' These are the rates upon which the high class or miscellaneous merchandise is carried, which constitutes, after all, a small proportion only of the railroad traffic (and, generally speaking, it is the traffic upon which the freight rate is not such an important factor), the bulk of the traffic being moved upon so-called 'commodity rates.'

"Within the past two or three years advances have been made in many commodity rates, with no injurious effect upon business interests, and there has been no substantial advances in these class rates, it was necessary that they should be carefully studied, and the general freight agents and traffic about same.

"Within the past few years, as is well understood, there has been a very great increase in the cost of operation of railroads, due to the increased cost of material and labor, and in order to offset this it would not seem unreasonable for the railroads to expect to secure an advance in the price of the commodity which they have to sell, namely, 'transportation.' Failure, so far, to accomplish this, except to a small extent, combined with the very large falling off in the volume of traffic, has brought the railroads face to face with a very serious problem, in the solution of which the general public (in view of the large part which the prosperity of the complaint roads play in the general prosperity) is as much interested as the owners and managers of railroad property. Before deciding as to the possibility and propriety of some rail managers were instructed to arrange to have a careful analysis made, and this has been in progress for some months. The complications and delicate adjustments surrounding the class rate question required a long period for this analysis. In the meantime there has been much depression upon the part of merchants, as well as railroad officers, the latter in some cases naturally endeavoring to explain why such an advance was being considered.

"At a recent meeting of the presidents of the Central Freight, Trunk Line and New England Territories, the results of the study at the time were laid before them, and, while the full analysis had not been completed, sufficient information was presented to cause the presidents to feel that it was impossible at this time, and until business conditions materially improved to make any general increase in these class rates. Instructions were given, however, to complete the analysis, which it was believed would be useful at some time in the future, when, under changed business conditions (which it is hoped will not be long delayed), the railroads could probably again give consideration to the matter, if the same high cost of operation should continue

"While, as stated, it was definitely decided that no general advance in class rates could be made, it was felt that there might be specific cases in which some advances could be properly made at the present time—particularly in commodity rates, or perhaps in class rates in some particular limited section where the present adjustment was unreasonably low in view of the cost of operation, and as compared with other rates—and the traffic managers are considering the matter further to see if such special cases exist.

"From the above explanation, therefore, you will understand that no general increase such as has been under discussion has been determined upon so far as the lines which I represent are concerned, nor, according to my information, have other lines in the territory in which we operate such intention, but when business conditions materially improve, if the cost of operation continues upon the same high basis as at present, or in the recent past, it will probably be necessary for the railroad companies to again consider advances in their rates."

THE RAILROADS AND THE PEOPLE.

EDITOR RAILWAY JOURNAL:

Never in the history of the country, than during the past and present depression in business, has it been more forcibly and clearly demonstrated to the people the mutuality of interest that should exist between them and the railroads, for what affects one affects all, either for good or evil. Both are so closely interwoven in everyday affairs as to be dependent on each other. Anything affecting detrimentally, or impeding the progress and prosperity of the railroads is sure to be felt in every line of industry and to permeate every section of our country, and affecting none, more so, than the farmer, mechanic and laborer. There is no denying these facts. They are potent, self-evident and have been brought home to us so clearly, we need not look for the proof; we have found it to our sorrow and deep regret. Some people have been in the habit of condemning corporations of all kinds, especially railroads, and not even making any distinction between the good and the bad in either case. It is a bad and dangerous practice, full of evil and productive of no good, and should not prevail. It seems to be the greatest stock in trade of our petty political hucksters, firebrands and demagogues, the forerunners of all evil and the destroyers of all good, who ply their trade for political purposes and personal aggrandizements at the expense of the people. It seems we needed an object lesson to rid us of these parasites, and I believe it has come to us and will be highly beneficial in the future, if it only sets the intelligent people to thinking, especially those who have felt it most and on whom it bore the hardest—the honest, industrious and hard working mechanic and laborer, who have for months been deprived of the means of livelihood. These are the kind of people I feel for and have a hearty sorrow for. I pray the burden will soon be lifted from the shoulders of honest toil and the smile of sunshine and happiness come to their homes. When they do get to thinking and find what misery, poverty and distress can be forced on an honest and industrious people, they will come to their senses and demand that justice and equity be doled out to all, and an honest, wise and patriotic system of government will be ours. Our railroads may need proper regulation and control, but they should not be regulated to death by every petty politician in almost every state in the Union, and by men who have no more conception of how to run a railroad than to navigate an airship. It takes a lifetime of study and hard work to do this, and railroad men don't sprout up like weeds: they need a power of cultivation, and it is not attained in legislative halls; it is worked out on the railroads, and you will find the brain, brawn and genius of the country right on the line of these very same railroads. There are so many laws now on the statute books, not only national legislation, but in every state of the Union, that are not only oppressive, but so complex that I defy not only any railroad man, but also any lawyer or judge to tell any railroad official or any shipper where he is at, and to make it still worse, there is a new crop springing up every few days. It is a crop that every man should pray that the blight of Egypt may fall on, and that the sowers of the seed may reap their own destruction. If such conditions are allowed to go on what will become of the laymen, you, I and the other fellow, on whom the burdens will eventually fall? Railroads should control every avenue of railroad transportation, no matter what its kind or nature, and be confined strictly to transportation and not be permitted directly or indirectly to be interested in other lines of business. I don't think they would have the time to spare, then, to engage in side lines of any kind.

They should be under *national* inspection or control only. The transportation system of this country is no longer a question of states or state rights; it has grown with our country and long since passed that period. It is, or they are, national in their scope and character.

OVER-CAPITALIZATION AND REBATES.

Over-capitalization should be prevented and all manner of *rebates* strictly prohibited under the severest penalties,—penalties that would not only be felt, but fully effective and about which there could be no question. That, in my opinion, would be all the legislation needed. Railroad rates could be, in my opinion, advanced, or at least readjusted. I believe it can and should be done in the interest of all. I don't think it would have any perceptibly bad effect upon the business or shipping interests of the country; in fact, I think it would have a counter effect. The consumer pays the freight, and the advance would hardly be felt by the 80,000,000 of our people. The increased revenue it would give the railroads would be beneficially felt in every line of industry. It would come back tenfold to the people as a whole; it would be spent in the maintenance of way, new rails and roadbeds, new equipment of all kinds, resulting in additional transportation facilities, better service and 101 other ways impossible and unnecessary to mention. It would give such an added impetus to increased business prosperity that the full benefits are beyond computing. I think it a very unwise policy that in any way hinders or hampers our railroads in denying their just demands by enforcing freight rates injurious to their interests, and vastly more so, to the millions their money keeps employed, not only on their roads, but in the mill, the factory and the store. Their revenue is not a hoarded revenue; it is a distributive one, and by its failure of distribution have we felt its effects. It brings blessings untold to many, very many who until now never knew the fountain heads of their prosperity. Take from the channels of trade the millions upon millions spent by the railroads and you will paralyze every industry of the country. Railroad rates are not oppressive, and only become so when unfair and discriminating. If we go back only fifty years in our country's history and review it intelligently, dispassionately and honestly, we can realize what railroads have done for it, and it will need no stretch of the imagination to do so. It would be utterly impossible for any his-

torian or writer to do them full justice, for it is beyond almost the mind of man to grasp the enormity of their work. I will not attempt it. I would consider it an insult to our intelligence to do so, as we have witnessed it in the growth and expansion of our country. Would it not be a folly to attempt to deny that to them we owe it? Were they not the pioneers and developers of that growth? Could it be accomplished without them? Does that question need any answer but your own? I need not go into particulars of their work and vast achievements, as volumes could be written and the truth remain untold.

This article was not written to enlighten petty politicians, who feast and fatten on the ruins of others. I know what their stock in trade is. I don't want to deprive them of it, but I kindly ask the people in full justice to themselves to do so. Nor is it for the merchant and manufacturer or shipper, whom it is supposed has made a life study of it, owing to his business connections. It is and was written to call the attention of the farmer, mechanic and laborer who, from their daily and arduous toil, do not have the time to devote to this subject that so vastly and deeply concern them and their welfare. To them, the toilers in the ranks, like myself, do I appeal. I ask them, as I have done, to devote some little time to this and other subjects that affect their welfare and that of their families, and then judge for themselves, calmly and deliberately, as to where their best interests lie. There is not a more intelligent class on God's green earth than the American farmer, mechanic and laborer, taken as a whole, and when they commence to reason with themselves, think and act for themselves, conditions will improve and be better for us all. We have had generals and statesmen whose glorious achievements have gone down in history since the birth of man, and whose deeds are still fresh in our memory. We have honored and glorified them for their deeds, but the greatest general of all is he who has built up a country and added to its happiness and prosperity,—the welfare of its people,—one whose achievements will be lasting and beneficial to them. Of such, too much praise cannot be given, and among such are the Hills and Harrimans who have built up, not only our great railway systems, but our great country, until it is today the foremost nation in all history. As a benefactor to the human race and to the untold millions yet to follow us, I would prefer to be a Hill or a Harriman than I would the greatest general or statesman in all history.

DAN J. COFFEY,
Sales Agent, Missouri & Illinois Coal Co., St. Louis, Mo.

COMBINED SHIPMENTS LEGAL.

The Interstate Commerce Commission on July 27, in reports by Commissioner Lane, rendered its decision in a group of cases which are of great interest to railroad officials and shippers generally. The question involved is the right of shippers to combine small quantities of freight of various ownership, either by arrangement among themselves or through the medium of a forwarding agency, and ship the combined lot at the relatively lower rates applicable to large shipments. The Commission decides in favor of the shippers upon the ground that the ownership of property tendered for shipment cannot be made a test as to the applicability of a carrier's rates. The Interstate Commerce Law forbids discrimination between shippers, and the fact that one shipper tenders a "bulked shipment" made up of property of various ownership consolidated before delivery to the carrier will not justify the carrier in making a different charge than for a shipment of similar character tendered by a shipper who is also the owner. The Commission rests its decision principally upon the case of Wight v. United States, 167 U. S., 512, where the Supreme Court held that the phrase "under substantially similar circumstances and conditions," as found in Section 2 of the Act prohibiting discrimination, refers to the matter of carriage. The decision also follows the English cases interpreting the so-called "Equality clause" of the English Act, which clause has been substantially incorporated into Section 2 of the Interstate Commerce Law.

The complaint in the case of the California Commercial Association v. Wells Fargo & Co., arises out of the refusal of the express company to apply its quantity rates to shipments which consist of a combination of packages of various ownership tendered at one time and one place by a single consignor and consigned to a single consignee under one bill of lading. The express company's tariff provided a rate of $8.00 per hundred pounds for shipments of 10,000 pounds or more and less than 20,000 pounds of merchandise from New York to San Francisco. A number of packages of merchandise aggregating 16,000 pounds in weight were assembled in New York by the New York Dry Goods Shipping Co. and offered to the express company as a single shipment consigned under one bill of lading to the complainant, a voluntary association of San Francisco merchants. Upon arrival of the shipment at destination the express company refused to deliver the goods at the $8.00 rate but charged its parcel rate against each separate package according to ownership. This was in accordance with its rule against "bulked shipments" which provided that the quantity rates could not be applied unless the consignor or consignee were the actual owner of the property. The Commission holds that the rule against "bulked shipments" is illegal, and orders that it be eliminated. Reparation is awarded in the amount of the excessive charges to which the complainant has been subjected by reason of the application of the rule.

NEW ROAD TO TIDEWATER.

That the Canadian government will have a new water outlet to Europe from its western fields, is a foregone conclusion. For the past five years there has been considerable speculation about the building of a railroad from some present railroad point to Hudson Bay at Fort Churchill, which is almost directly north of Winnipeg, Man. Recently the government has taken special interest in this undertaking and has decided to further the proposition. It proposes to build the road in question and grant trackage rights to other systems over the new road. About the middle of August last the first steps were taken towards actual work in this great enterprise, when a party of about one hundred men started from Winnipeg to locate the route for the proposed road. The results of this surveying party are to be laid before the Canadian Parliament next January, and it is understood that construction work is to follow early in 1909. The commercial advantage of this new road is to afford a short rail haul to tidewater for eastbound and export traffic. From Fort Churchill to Liverpool it is only about three thousand miles, via Hudson Bay and the

Atlantic Ocean, and it is claimed that this waterway is open to traffic about four months of the year. As a vast territory of western Canada is a rich grain and stock growing country, rapidly developing, this new outlet should naturally be of great commercial value to that country.

GOVERNMENT OWNERSHIP IN JAPAN.

Government ownership of railroads is about to become a reality in Japan, notwithstanding that country's reported financial troubles. A portion of the roads of Japan have been owned by the government. It was in 1874 that a few lines were fostered and operated by the government of Japan. It was not until 1884 that private companies began to build roads in that country, and during the recent war between Japan and Russia, Japan took over some of the private lines. At the end of the fiscal year of 1907 nearly half of the railway mileage belonged to the government, and now it has arranged to purchase 2,812 out of the 2,932 miles of private roads, at a cost of about $114.500,000. The Department of Finance has issued its "Financial and Economic Annual of Japan for 1908," in which it says:

* * * The railway profits have increased beyond expectation. According to the estimates formed when the nationalization scheme was first considered, it was anticipated that during the first two financial years the profit from the nationalized railways would be insufficient to meet the debts incurred on account of purchase; but in the financial year 1906-7 the actual profit was 16,687,452 yen, against the estimated amount of 15,481,547 yen; and in the year 1907-8 also it is believed that the actual receipts will exceed the estimated amount, which is 31,312,880 yen, so that the profit from the purchased railways will be more than sufficient to pay the interest.

SANTA FE IMPROVEMENTS.

Mr. J. E. Hurley, general manager of the Santa Fe, is quoted by the Kansas City Journal as follows:

"Before the first of next year we will have laid 300 miles of new and heavy steel at various points along our line. Among the most extensive improvements will be the new shops and roundhouses at Argentine and Chanute. The erection of the steel frame for the new Argentine machine shop was begun today and work will soon begin on the Chanute improvements. The Argentine shops will be one story and will cost about $50,000. The old shops burned about a year ago, and since then the machine work has been done in a temporary building, the financial situation having been such that we did not feel encouraged in going ahead with the work until times were better.

"Besides all this, we have in course of construction a 200,000,000-gallon reservoir at Richmond, Kan., and that will soon be finished. Even now we are changing the line and completing a grade reduction at Hilton, Colo., which is, in itself, an enormous project. We are also erecting new depots in Oklahoma and Texas, the most important ones being at Woodward, Okla., and at Canadian and Hereford, Tex. Another important work which is now being finished up is the rehabilitation of the line from Wellington west so that we may have the use of the Belen cut-off. We expect to have that ready for through service by the first of November.

"Yes, business is picking up now. The crops are moving from south to north and from west to east. The cotton and corn crop of the South may be described as a bumper crop and it is now on the move. Kansas and Missouri have been particularly fortunate in their crops this year and the movement will be heavy. Illinois, I believe, is the only state along our line that has suffered to any great extent."

PAN-AMERICAN RAIL PROJECT.

For the past ten years the commercial interests of this country and those of Mexico, Central and South Americas, have been contemplating the time when direct rail connections will be made with the roads of this country and those of the countries above mentioned. Rail transportation all the way from New York or Chicago to the leading cities of South America is a possibility and a probability in course of time. The consummation of such a project means a great deal to all countries interested, not only from a transportation standpoint, but also in regard to the development of new lands and an increase of population, particularly in the countries south of us, where millions of acres of undeveloped resources are awaiting transportation and the hand of man to turn them in the channels of commerce. The social intercourse between the different countries will also be benefited, and all nations placed on a more neighborly basis with one another. These are only a few of the many benefits to be derived from such an interchange of traffic.

There is at present a commission or board consisting of members each appointed by the various countries of the two continents for the purpose of promoting in an official way the Pan-American railway project. Mr. C. M. Pepper, who represented this country, made a report early last month to former Senator H. G. Davis, of West Virginia, chairman of the permanent Panama railway, who in turn has presented the report to the State Department at Washington. In the report Mr. Pepper gives some interesting figures on the roads of South America and Central America. It is of course understood that the roads of Mexico already reach almost to the frontier of Guatemala, which in turn connect with the systems of this country.

According to Mr. Pepper, the railways of the Argentine Republic have reached the border of Bolivia, a distance of 1,200 miles from Buenos Ayres, and that under the treaty agreement with Bolivia, the Argentine government is making engineering studies for the prolongation of its line to the town of Tupiza, which will be reached from the north by the line to be built by the Speyer-City bank syndicate of New York. In July the New York syndicate will have completed the first section of the Bolivian railway under its contract with the Bolivian government.

This section will be 128 miles long, and it will result in through railway communication from Lake Titicaca to the town of Uyuni, 363 miles. The line from Uyuni to Tupiza, 125 miles, will then be undertaken. From the latter point to the Argentine border is fifty-two miles, so that of the 540 miles which constitute the Bolivian link in the Pan-American system, 177 miles remain to be completed, and these are provided for. Since the Argentine lines to Bolivia already are completed, it may be said that only 177 miles out of a total of 1,740 miles are needed to fill in the gap between Buenos Ayres and Lake Titicaca.

In Chile, railway construction on the cross-continental line between Valparaiso and Buenos Ayres has advanced so that a four hours' stage ride is the only break in a continuous railway journey from the Pacific to the Atlantic. It is expected that the Spiral tunnel, which will enable the junction of the railway lines to be made, will be completed in eighteen months. Some progress has been made in Peru and Ecuador, but very little in Colombia.

In Mexico, by the construction of the Tehuantepec railway, the government provided a through link in the

Pan-American system, and construction has proceeded from Geronimo on the Tehuantepec line south, until the Guatemala border is only a few miles distant.

The transoceanic line in Guatemala connecting the Pacific port of San Jose with the Atlantic port of Barrios was opened for traffic in January. Costa Rica also is completing the construction of its transoceanic line from Port Limon to Tivives. Nicaragua is carrying out plans for prolonging its lines from the Pacific to the Atlantic. It is certain that within a short time there will be three transoceanic lines in Central America and the various countries will then have every inducement to join in building the Pan-American backbone.

CABLEWAY IN TUNNEL CONSTRUCTION.

One of the most interesting uses of the cableway in recent railroad construction was in connection with the excavation of a tunnel nearly a mile long, built to carry the Tidewater Railroad through summit of the Alleghany Mountains, where the line crosses at Merrimac Mines, near Christiansburg, Va. Ordinarily, as is well known to those familiar with work of this kind, it is the custom to prepare the railroad bed right up to one or both mouths of the tunnel, and to use the road thus prepared as a means of disposing of the spoils from the tunnel. In this case, however, the grades required deep open cuts in rock for the approaches. A little preliminary study of the situation satisfied both McArthur Bros. & Co., the contractors, and the railroad officials that a great deal of time would be lost in completing this part of the road unless work could be carried on in constructing the tunnel simultaneously with the excavation of the approaches. Shafts were sunk at both ends of the tunnel. At the eastern end a double compartment shaft was used and the material hoisted in regular self-dumping mine cars. These were run out on a narrow gauge track and the spoils from that end of the tunnel were disposed of in a flat section nearby, forming an extended dump. At the west end of the tunnel a small valley in the mountains crossed the line of the tunnel approach at a slight angle. The valley was so favorably situated for running the spoils that it suggested at once the use of a cableway.

An open shaft 50 feet deep was sunk to the track level in the tunnel and a 100-foot high tail tower of a Lingerwood cableway was built beside it. Twelve hundred feet away and forming with the cableway an angle of about 30 degrees with the line of the railroad was built a 125-foot high head tower. The cable spanned the mouth of the shaft so that it could be used to hoist the material directly from the tunnel level as well as covering an ample dumping ground in the valley. The material was handled in special cableway skips, which served also as cars to bring the excavated rock from the tunnel heading to the shaft. The skips were 7 feet square and each held about 3 cubic yards. Each one was mounted on low U shaped axles, one near each end, and provided with flanged wheels. Two tracks were laid in the tunnel for the skips to travel upon. This arrangement of wheeled skips retained the advantage of keeping them low for easy loading while making them available for the double service of car and skip. One end of the skip is open and stands only 9 inches above the ground. When they arrived at the bottom of the shaft the cableway picked them up, lifted them above the surface, carried them along to the dumping point and then discharged the spoils at any point desired, at the will of the operator, by means of the Lingerwood patent air grip dumping device. The cableway was of the regular type with patented fall-rope carriers, and designed for a six-ton load in its span of 1,200 feet and fitted with the Lingerwood aerial dump. It was operated by a steam cableway engine having cylinders 12 by 12 inches and 51-inch drums.

LIDGERWOOD CABLEWAY USED ON TIDEWATER RAILWAY.

The annual report of the Colorado & Southern for the year ending June 30, 1908, shows a surplus of $2,127,522, and an increase of $35,668 over the previous year.

The Santa Fe has completed arrangements for an issue of $17,000,000 worth of bonds, secured by a first mortgage on the Belen cut-off, which is a portion of the main line of the road.

The crops throughout the West and Southwest have proven to be so good that some railway officials are predicting car shortage this fall. Cotton and grain traffic promises to be heavy this season.

A press report from Boston says: The Aerial Navigation Company of Boston, to do a freight and passenger business by airship between Boston, New York and other points, was incorporated at the State House today, the capital stock being $50,000. The incorporators are named as H. H. Bond and C. H. Bond of Boston and James L. Bruce of Waltham

FROM MY OBSERVATION CAR.

BY R. R. JESTER.

The Chicago Transportation Association, while yet in its infancy, is showing by its frequent outings that its membership is composed of energetic and wide awake people. Their last outing being a lake trip on the Goodrich Transit Company's steamer Christopher Columbus to Milwaukee, which was arranged through the good and generous Mr. C. B. Hopper, general freight agent of the Goodrich line, who was untiring in his efforts to give a memorial trip, in which he succeeded in doing. On the way to Milwaukee the Association had a very interesting and enthusiastic meeting, acting on several important questions, one being changing of the constitution and by-laws to admit to membership general and commercial agents, assistant general agents, general freight and passenger agents and traffic managers of all railroads, express and steamship companies. Another important matter that was taken up and acted favorably on was the advisability of securing permanent headquarters. After very favorable discussion it was decided to accept the offer of the Wellington Hotel people, of which no better hostelry is known in Chicago and centrally located, and after September 1 the Association headquarters will be located at that place.

CHRISTOPHER COLUMBUS—GOODRICH TRANSIT CO.

Upon arrival in Milwaukee the members were met and entertained by the Milwaukee Transportation Association, which had arranged for a trolley ride to Schlitz brewery, where was met the genial traffic manager, Mr. C. J. Bertschy, who showed all the workings and makings of their products, and, having seen all interesting points, were escorted to the Rathskeller, where was served a Dutch lunch. After lunch another trolley ride to their famous Palm Garden and, after inspection, to the boat for the return trip.

The return trip was enlivened by a dinner served in the main dining room, which was held in reserve for the Association. An orchestra furnished music during the dinner and discoursed popular music.

The evening was spent by all the party congregating on the upper deck in a very enjoyable way, singing all the popular songs of the day as well as being treated to a feast in wit and humor by a popular member, Mr. Clurken, who was at his best and furnished a very pleasant and enjoyable evening.

All arrived safe and on time, the party voting the outing a big success and longing for another trip to Milwaukee on the good ship Christopher Columbus.

* * *

Have the railroad managers of Norway combined to humiliate the married women of that country? A new order has just gone into effect there which places married women in the same class as children under 10 years, that is, by granting them half fare when traveling with their husbands. But why should a lady be granted this special privilege only when traveling with her other half? It cannot be argued that because he has the freight to pay for both when they are together, for he is supposed to have it to pay anyway In this country some women argue and even complain bitterly because they are denied the ballot; that such a discrimination places them in the same class with minors, convicts and idiots, politically. How about the half fare proposition of Norway? The married lady is there placed in the same class with children. Another heartless discrimination! What are they going to do about it? If they take my advice, they will accept the favor granted and be grateful for the discrimination. That is the best way to solve that puzzle. I am going to suggest that the interstate commerce laws be changed to grant the same kind of discrimination to the ladies of this country, only I believe in going Norway roads one better, by also admitting all single ladies under 90 years of age in the same class. Come to think about it, this affords grounds for a good political issue in a national campaign. What do you say, ladies?

* * *

By the Texas papers, I see that the erstwhile Wall street broker, John W. Gates, has decided to announce himself for congress in his new district in the Lone Star State. John W. has been living in Texas in the Port Arthur section only about long enough to finish a new golf links and subscribe for a few country weeklies, and has hardly had time to ripen into a properly matured candidate for anything, excepting of course an easy mark. If he is really sincere in his efforts to make political history, I would suggest that before he opens more than two or three barrels, that he go and see E. H. R. Green, president of the Texas Midland at Terrell, Texas, and ask him what he thinks about it, or inquire what it cost Mr. Green to be republican candidate for governor. A close perusal of Texas history will reveal to Mr. Gates that, as a general thing, they do not elect to high offices in that state men who are the sons of millionairesses, or even retired millionaires fresh from Wall street. No, not yet, Mr. Gates. However, go into the race and have a good time. The expenses and the fun derived will strike a fair balance after election day—that is, your expenses and the other fellow's fun.

The stockholders of the Denver & Rio Grande and the Rio Grande Western voted recently to consolidate the two companies into one, known as the Denver & Rio Grande Railroad Company. The company is to issue $88,000,000 in stock and $150,000,000 in bonds. Mr. E. T. Jeffrey is president of the company as before.

One of the handsomest advertising productions sent out this season is the beautiful book called "Forest, Stream and Seashore," issued by the passenger department of the Intercolonial Railroad. The work contains over 200 pages, is finely illustrated with half-tone and color productions of scenes along the road. The descriptive matter is choice reading, delineating the salient features of that beautiful and commercial country traversed by the Intercolonial.

PERSONAL

EXECUTIVE, OPERATING AND PURCHASING.

W. Atwill has been made trainmaster of the Illinois Central at Ft. Dodge, Ia.

J. G. Scott has resigned as general manager of the Quebec & Lake St. John.

M. J. Carpenter has been chosen receiver of the Southern Indiana; office at Chicago.

W. A. Card has been made division superintendent of the Burlington at Galesburg, Ill.

W. J. Ingling has been made trainmaster of the Oregon Short Line at Pocatello, Idaho.

J. L. Pultz has been made general manager of the Birmingham & Gulf Ry. & Navigation Co.

W. H. Whalen has been made division superintendent of the Southern Pacific at Dunsmuir, Cal.

W. J. Lawrence, fuel agent of the Rock Island, has resigned and his office has been abolished.

B. G. Calloway has been appointed purchasing agent of the Tennessee Central; office at Nashville, Tenn.

E. Taylor has been made trainmaster of the Santa Fe at Beaumont, Tex. **H. T. Flint** is chief dispatcher.

F. A. Parker has been made chief dispatcher of the Rock Island at Trenton, Mo., vice **J. P. Quigley,** resigned.

M. W. Wells has been made general manager and **M. E. Sebree** superintendent of the Southern Indiana; office at Chicago.

W. T. Chisholm, chief assistant to **H. B. Chamberlain,** vice-president of the Erie, has resigned to go to the Boston Dining Car Co.

D. I. Roberts has been made general manager of the Quebec, Montreal & Southern, vice **C. B. Hibbard,** resigned; office at Montreal.

John B. Munson has been elected vice-president of the Georgia Southern & Florida, with office at Macon, Ga., vice **S. F. Parrott,** resigned.

J. F. Hanson, president of the Central of Georgia, and **C. C. Williams,** secretary, have moved their offices from Macon, Ga., to Atlanta.

F. A. Updegraff has been made acting president and superintendent of the Union Depot Co. at Kansas City, vice **E. J. Sanford,** deceased.

S. J. Dill has resigned as vice-president of the Youngstown & Southern to become general manager of a power and light plant at Elmira, N. Y.

H. H. Brewer has been appointed superintendent of the Lake Superior division of the Grand Trunk Pacific, with headquarters at Westford, Ont.

E. N. Brown, president of the National Railroad of Mexico, has been elected also president of the National Railways of Mexico, office at Mexico City.

T. H. Williams, formerly superintendent of car service of the Indiana Harbor Belt, is now train and station inspector of the Southern Pacific at San Francisco, Cal.

E. P. Bracken has been made division superintendent of the Burlington at Galesburg, Ill., and **W. F. Thiehoff** has been made division superintendent at Brookfield, Mo.

A. de Sola Mendes has been made general manager of the Georgia Coast & Piedmont, vice **H. D. Emerson,** resigned; **C. L. Hines** is trainmaster; offices at Darien, Ga.

John M. Rapelje, superintendent of the Northern Pacific at Glendive, Mont., has been transferred as superintendent at Missoula, Mont., succeeding **F. E. Willard,** resigned.

J. R. Dillon has been chosen vice-president and general manager of the Gulf & Interstate, vice **F. H. Dever,** made superintendent of the Houston Belt & Terminal, at Houston, Tex.

C. T. Williams, whose resignation as secretary and treasurer of the Raleigh & Charleston, has been appointed secretary to the receivers of the Seaboard Air Line, with office at Baltimore, Md.

W. D. Reid has been chosen president of the Reid Newfoundland Co., vice **R. G. Reid,** deceased; office at St. Johns, N. F. **H. D. Reid** has been chosen vice-president, vice **W. D. Reid,** promoted.

F. L. Lewis, superintendent of the San Antonio & Aransas Pass, has been appointed assistant general manager, succeeding **F. C. Smith,** resigned to engage in other business; office at San Antonio.

D. B. Hannah, third vice-president of the Canadian Northern, has been made president also of the Niagara, St. Catherines & Toronto, vice **F. Nicholls. J. D. Morton** becomes vice-president, vice **E. R. Wood.**

G. Hodge has been made division superintendent of the Canadian Pacific at Montreal, and **J. R. Gilliland** has been made superintendent of terminals at that point. **W. J. Uren** has been made chief dispatcher at Winnipeg, Man.

R. M. Leech, division superintendent; **W. H. Harrigan,** trainmaster; and **S. H. Brown,** chief dispatcher, all of the National Lines of Mexico, have moved their headquarters from Mexico City to Queretaro, Mex. **E. F. Coady, E. F. Mathias** and **R. Wurtemberg,** dispatchers, were also transferred.

D. H. Robinson has been appointed trainmaster of the Joplin division of the Missouri Pacific, with headquarters at Nevada, Mo., vice **L. B. McGuire,** resigned. **J. F. Russ** has been appointed trainmaster of the Northern Kansas division, with headquarters at Concordia, vice **D. H. Robinson,** transferred. The jurisdiction of **R. G. Carden,** trainmaster at Atchison, Kan., has been extended.

TRAFFIC AND ACCOUNTING.

J. B. Gibson has been made traveling freight agent of the Rock Island at Houston, Tex., vice **J. C. Dillard.**

L. H. Sackett, agent of the Baltimore & Ohio at Foxburgh, Pa., has resigned.

T. J. Wall is traveling passenger agent of the Canadian Pacific at St. Louis, Mo.

L. B. Leeming has resigned as advertising agent of the Mexican Central at Mexico City.

S. M. Wilcox has been appointed traveling agent, foreign department, of the Erie at Chicago.

Ely Ensign has been made traveling freight and passenger agent of the Southern Pacific at Dallas, Tex.

R. M. Warner has been made general agent of the Missouri & North Arkansas at Eureka Springs, Ark.

F. M. Patton has been appointed acting general freight agent of the Georgia Coast & Piedmont at Darien, Ga.

Chas. Eickel has been made freight agent of the Mexican International at Durango, Mex., vice **A. Gregory,** resigned.

B. H. Hartley has been appointed commercial agent of the Seaboard Air Line at Atlanta, Ga., vice **C. P. Pitchford.**

Charles H. Trimble, commercial agent of the Atlantic Coast Line at Cincinnati, has been transferred to St. Louis.

T. F. Harrington, formerly with the Wabash, has been made general southwestern agent of the Cunard Steamship Co.

H. E. Grace has been appointed customs agent of the Sonora Railway at Nogales, Sonora, Mex., succeeding **Alberto Clausen.**

E. M. Gleason, commercial agent of the Rock Island, has been appointed secretary of the Dallas Freight Bureau, Dallas, Tex.

R. B. Webb has resigned as commercial agent of the International & Great Northern at Ft. Worth, Tex., effective September 1.

F. J. McDonald has been made traveling freight agent of the Southern Pacific at Mexico City, vice **F. P. Best,** resigned to go to Cuba.

L. D. Loomis has been appointed freight and ticket agent of the Lehigh Valley at North Tonawanda, N. Y., vice **J. W. Williams.**

R. S. Palmer has been appointed general agent of the Quincy, Omaha & Kansas City at Kirksville, Mo., succeeding **E. S. Jacobs.**

E. A. McKenna has been appointed traveling freight agent of the Northern Pacific at Walla Walla, Wash., vice **G. D. O'Connor.**

T. H. Koerner has been appointed commercial agent of the Minneapolis & St Louis and of the Iowa Central, at Spokane, Wash.

J. Welch has been appointed auditor of the Montana Railroad, with office at Helena, Mont., succeeding **F. W. Sharpe,** resigned.

R. G. Thompson has been appointed district passenger agent of the Wabash at Indianapolis, Ind., vice **George D. Maxfield,** promoted.

John W. Williams, passenger and freight agent of the Lehigh Valley at North Tonawanda, Pa., has resigned on account of ill health.

H. B. Tooker has resigned as general freight and passenger agent of the Nevada Northern and the office is handled by the general manager.

R. R. Waterbury has been appointed chief clerk of the traffic and auditing departments of the Duluth, Missabe & Northern, at Duluth, Minn.

W. A. Beckler, northern passenger agent of the Queen & Crescent, has been appointed assistant general passenger agent of the system at Chicago.

William W. Tull has been appointed contracting freight agent of the Atlanta, Birmingham & Atlantic at New York, succeeding **Hord Brown**, resigned.

Day Cage has been appointed to the new office of general live stock agent of the Stephenville, North & South Texas; office at Stephenville, Tex.

Carl Rasch has been appointed secretary of the Montana Railroad, with office at Helena, Mont., succeeding **T. A. Mapes**, who continues to be treasurer.

J. E. Weller has been appointed division freight agent of the Pittsburgh, Cincinnati, Chicago & St. Louis at Pittsburg, Pa., succeeding **J. J. Lippincott.**

W. W. Masters has been made commercial agent of the Norfolk & Western at Indianapolis, and **E. L. Strawser** has been made soliciting agent at Cincinnati.

E. H. Ross, freight agent of the Santa Fe, at San Angelo, Tex., has been appointed transportation agent at Galveston, Tex. **H. E. Everheart** succeeds **Mr. Ross.**

Carl Howe has been appointed manager of the New York Central fast freight lines. **W. F. Wilson** has been appointed assistant manager; offices at Buffalo, N. Y.

J. W. Allison has been appointed assistant general freight agent of the Cincinnati, Hamilton & Dayton, succeeding **A. D. McLeod**, deceased; office at Cincinnati.

H. A. Bonn has been appointed northwestern passenger agent of the New York, Chicago & St. Louis, with headquarters at Seattle, Wash., effective September 1.

S. D. McLeish, commercial agent of the Lake Erie & Western at New York, has been appointed general agent at that city, and his former office has been abolished.

G. J. Noeller, traveling passenger agent of the Toledo, St. Louis & Western and the Chicago & Alton at Buffalo, N. Y., has resigned to engage in other business.

C. A. Asterlin, Northwestern passenger agent of the New York, Chicago & St. Louis, has been appointed district passenger agent at Minneapolis, effective September 1.

J Rankin, agent of the Canadian Pacific at Shanghai, China, has been appointed agent at Kobe, Japan, succeeding **H. T. Wilgres**, transferred. **A. R. Owen** succeeds **Mr. Rankin.**

Frank Bowman, district passenger agent of the Chicago & Alton and of the Toledo, St. Louis & Western at Philadelphia, Pa., has been appointed eastern passenger agent at New York.

J. R. Ballard, commercial agent of the Lake Shore & Michigan Southern at Minneapolis, Minn., has been transferred as commercial agent at St. Paul, Minn., succeeding **G. C. Knoche.**

H. T. Safford, traveling passenger agent of the Chesapeake & Ohio at New York, has been appointed manager of Marster's Tourist Agency, with offices in New York and Boston, Mass.

H. N. Butterfield, division passenger agent of the Delaware, Lackawanna & Western at Newark, N. J., has been appointed Pacific Coast freight and passenger agent at San Francisco, Cal.

G. B. Coombe has been made freight and passenger agent of the Canadian Pacific at Calgary, Alta. **E. Olson** has been made traveling passenger agent at St. Louis, vice **W. S. Merchant**, resigned.

The office of **A. W. Nonnemacher**, special passenger agent of the Lehigh Valley, has been moved from New York to Allentown, Pa. **H. J. Bills** has been appointed passenger agent at Chicago.

Charles J. Payton, clerk in the freight department of the St. Louis, Brownsville & Mexico at Kingsville, Tex., has been appointed commercial agent at Houston, Tex., succeeding **J. A. Giraud**, resigned.

W. H. Willis, Canadian freight agent of the Pennsylvania at Toronto, Ont., has been appointed district freight solicitor at Pittsburg, Pa., succeeding **J. E. Weller. M. J. Fox** succeeds **Mr. Willis.**

William Heyman has been appointed export and import freight agent of the Delaware, Lackawanna & Western at New York, in charge of the work of the former foreign freight agent at New York.

C. R. Hogle, commercial agent of the National Lines of Mexico at Cincinnati, has been appointed traveling passenger agent of the Algoma Central & Hudson Bay and of the Algoma Central Steamship Line.

W. O. Rock has been appointed division passenger agent of the Burlington at New York, vice **H. W. Hawley. F. M. Seymour** has been appointed traveling freight agent at St. Louis, Mo., vice **Eugene Saunders.**

J. J. Campion, general freight agent of the Atlanta, Birmingham & Atlantic, has resigned, effective September 1, to become general freight agent of the Brunswick Steamship Co., with headquarters at New York.

C. D. Whitney, formerly general traffic manager of the Toledo, St. Louis & Western, has been appointed assistant general freight agent of the Missouri & North Arkansas, with headquarters at Eureka Springs, Ark.

J. W. Bryan, city passenger agent at Milwaukee, Wis., of the Chicago & Alton and the Toledo, St. Louis & Western, has been appointed traveling passenger agent at Pittsburg, Pa. **James Bebe** succeeds **Mr. Bryan.**

Charles W. Ten Broeck, foreign freight agent of the Delaware, Lackawanna & Western at New York, has resigned, effective September 1, to accept service with A. H. Post & Co., New York, freight forwarders.

G. R. Hackley has been appointed general agent of the Mexican Central and of the National Lines of Mexico at Mexico City. **V. M. Gutierrez** has been appointed traveling freight and passenger agent at Mexico City.

F. J. Burke has been appointed commercial agent of the International & Great Northern at Denver, Colo., succeeding **J. M. Ball**, transferred. **B. A. Sullivan** has been appointed traveling freight agent at San Antonio, Tex.

R. King, station agent of the Canadian Pacific at McAdam Junction, has been appointed terminal agent at West St. John, N. B., succeeding **J. R. Gilliland**, promoted. **W. C. S. Paynter**, warehouse clerk at West St. John, succeeds **Mr. King.**

G. C. Wilson has been appointed acting city freight agent of the Canadian Pacific at Buffalo, N. Y., vice **W. S. Nevins**, resigned. **Fred Nason** has been appointed city passenger agent at San Francisco, Cal., vice **W. C. Clawson**, resigned.

Walter Walthall, city ticket and passenger agent of the Missouri, Kansas & Texas at Austin, Tex., has been appointed city ticket and passenger agent at San Antonio, Tex., vice **F. O. Griffin**, resigned. **R. F. Buford** succeeds **Mr. Walthall.**

F. W. Smith, assistant general freight and passenger agent of the New York, Ontario & Western, has resigned, effective August 1, and has been appointed to represent the Trunk Lines Association on the Uniform Classification Committee.

R. C. Brooks has been appointed commercial agent of the Central of Georgia, with headquarters at Savannah, Ga., vice **H. A. Jordan**, resigned. **George R. Wright** has been appointed commercial agent at Montgomery, Ala., succeeding **R. C. Brooks.**

W. D. Cornell has been appointed traveling passenger agent of the Chicago & Alton and the Toledo, St. Louis & Western, at Buffalo, N. Y., succeeding **George J. Noeller**, resigned. **J. W. O'Brien** has been appointed traveling passenger agent of these lines at Pittsburg, Pa.

C. S. Crane, general passenger agent of the Wabash, has been appointed general foreign passenger agent. **J. D. McNamara**, assistant general passenger agent, succeeds **Mr. Crane. C. H. Stinson**, assistant general freight agent, has been appointed general freight agent; offices at St. Louis.

T. J. Kizer, commercial agent of the Big Four at Toledo, Ohio, has been transferred as commercial agent, to Terre Haute, Ind., succeeding **W. V. Carroll**, resigned. **C. W. Smith** succeeds Mr. Kizer. **M. B. Toney** has been appointed commercial agent at Nashville, Tenn., vice **W. M. Pennington**, resigned.

Charles A. Bland, commercial agent of the Georgia Railroad at Memphis, Tenn., has been appointed traveling freight agent at St. Louis, and his former office is abolished. **R. C. Wharton**, commercial agent at Chicago, has been appointed traveling freight agent at St. Louis, and his former office is abolished.

E. Tatom, district passenger agent of the Southern Railway at Nashville, Tenn., has been appointed passenger agent of the Tennessee Central at Nashville. **C. H. Saunders**, local

agent of the Southern Railway and the Illinois Central at Nashville, has been appointed general agent of the Tennessee Central at Nashville.

S. P. Collier, Jr., commercial agent of the Atlantic Coast Line at Montgomery, Ala., has been appointed division freight agent at Jacksonville, Fla., succeeding **F. W. Kirtland**, resigned, to go to another company. **G. A. Cardwell** succeeds **Mr. Collier. E. H. Smith** has been appointed commercial agent at Cincinnati, vice **C. H. Trimble**, promoted.

W. E. Davis, passenger traffic manager of the Grand Trunk, has been appointed also passenger traffic manager of the Grand Trunk Pacific, with headquarters at Montreal, Que. **G. T. Bell**, general passenger and ticket agent of the Grand Trunk, has been appointed also general passenger and ticket agent of the Grand Trunk Pacific, with headquarters at Montreal. **J. E. Quick**, general baggage agent of the Grand Trunk, has been appointed also general baggage agent of the Grand Trunk Pacific, with headquarters at Toronto, Ont.

ROADWAY AND ENGINEERING.

J. J. Cozzens, supervisor of signals of the New York Central, has resigned.

F. T. O'Dowd has been made inspector of ties for the Santa Fe in Texas; office at Galveston, Tex.

Thomas Sinnot has been made roadmaster of the Oregon Short Line at Glenn's Ferry, Ida. **Elmer Holt** is assistant roadmaster at that point.

F. K. Edwin has been appointed superintendent of bridges of the New York, New Haven & Hartford at Stamford, Conn., vice **V. V. Wiggin**, resigned.

Sherman Smith has been appointed superintendent of construction of the Grand Trunk Pacific at Portage la Prairie, Man., succeeding **Otis Weeks**, resigned.

D. B. Bartholomew, assistant supervisor of signals of the Pennsylvania at Kittanning, has been transferred, as assistant supervisor of signals, to the West Jersey & Seashore at Camden, N. J.

E. S. Heyser, roadmaster of the St. Louis, Brownsville & Mexico at Bay City, Tex., has been transferred, as roadmaster, to Refugio, Tex., succeeding **W. J. Carnohan**, granted leave of absence. **T. P. Vuncannon** succeeds Mr. Heyser.

E. F. McCrea, assistant engineer of maintenance of way of the Pennsylvania Lines West at Cleveland, Ohio, has been appointed assistant engineer of maintenance of way, Pittsburg, Pa., succeeding **S. W. Hodgin**, transferred. **G. R. Barry**, assistant engineer at Columbus, Ohio, succeeds **Mr. McCrea. R. C. Miller**, assistant engineer at Logansport, Ind., succeeds **Mr. Barry. H. W. Brown**, assistant engineer at Louisville, Ky., succeeds **Mr. Miller**, and **Mr. Nesbit**, heretofore of the engineering corps of the Eastern division, at Allegheny, succeeds **Mr. Brown.**

MECHANICAL.

J. H. Munro has been made locomotive foreman of the Canadian Pacific at Muskoha, Ont.

George Wagstaff has resigned as supervisor of boilers of the New York Central Lines, effective September 1.

Wm. Baird has been made shop superintendent of the Burlington at Plattsmouth, Neb., vice **H. J. Helps**, resigned.

L. C. Brody has been appointed roundhouse foreman of the Pennsylvania at Phillipston, Pa., succeeding **F. B. McKelvy.**

Chas. Swanson has been made master smith of the C. G. W. at Oelwein, Ia., vice **W. B. Collinson**, resigned to go into private business.

I. Jeffries has been made acting locomotive foreman of the Grand Trunk at Palmerston, Ont., vice **W. Hamilton**, made locomotive foreman at Stratford, Ont.

W. C. Hayes, superintendent of the Erie at Susquehanna, has been appointed superintendent of locomotive operation, with headquarters in New York.

C. E. Gossett, master mechanic of the Rock Island at Armourdale, Kan., has been appointed master mechanic of the Iowa Central, succeeding **T. M. Feeley**, resigned.

J. A. Mitchell, locomotive foreman of the Grand Trunk at Stratford, Ont., has been appointed locomotive foreman of the Grand Trunk Pacific, with office at Rivro, Man.

W. J. Haynen, formerly master mechanic of the Gulf & Ship Island, has been appointed assistant general manager of the J. J. Newman Lumber Co., at Hattiesburg, Miss.

H. H. Hale, superintendent of motive power of the Nevada Railroad, has been appointed master mechanic of the Gulf & Ship Island, at Gulfport, Miss., vice **W. J. Haynen**, resigned.

G. W. Taylor resigned as master mechanic of the Santa Fe at Newton, Kan., to become superintendent of motive power of the San Antonio & Aransas Pass at San Antonio, Tex., vice **G. W. Butcher**, resigned. **E. E. Machoree** becomes master mechanic of the Santa Fe at Newton.

OBITUARY.

E. J. Sanford, president and superintendent of the Union Depot Co., at Kansas City, died on August 6, aged 60 years.

Albert McLeod, assistant general freight agent of the Cincinnati, Hamilton & Dayton, died on July 20 in Cincinnati, Ohio.

Frederick Dwight Raymond, secretary and treasurer of the Elgin, Joliet & Eastern and the Chicago, Lake Shore & Eastern, died of heart failure on July 18, at his home in Evanston, Ill.

CONSTRUCTION EXPENDITURES ON GOULD LINES.

Just at this time when fixed charges of railroads are hard to meet on account of falling off of traffic, one can appreciate what it means for a line to have its expenses reduced to a minimum. Earnings that have been applied to the construction of improvements now have their effect on the fixed charges as against bonds issued for the same purpose. In a recent issue of the New York Mail and Express, Mr. C. F. Spear, the financial editor, has an interesting article on the physical condition of the Gould lines, in which with his fair criticism, has some complimentary statements along this line. The writer has familiarized himself, apparently, with the true conditions of the roads and the amount the different Gould roads have expended. It is unfortunate that these facts and figures cannot be placed in the hands of every shipper and voter in the territory traversed by the roads mentioned. They bear with them arguments that tend to silence the criticising politician. In part Mr. Spear says:

A fault that might be found with the Gould policy is that of too great reliance on current earnings for development projects. Just now this policy stands the test of criticism, as it has its recompense in smaller fixed charges than would have had to be met if the improvements had been capitalized. Under all circumstances it leads, at times, to a contraction in cash resources of inconvenient size. In proportion to its gross earnings no other system has spent more from current revenues for those improvements that enlarge the carrying capacity and reduce the carrying charge than has the Gould system. The practical reconstruction of the Wabash railroad from earnings stands out as one of the conspicuous railroad achievements of this generation. In one year, 1905, the appropriations for this account, from current revenues, amounted to more than $3,400 per mile. Between 1901 and the end of 1907 the Texas Pacific charged up $15,500,000, or nearly 17 per cent of the gross earnings in those seven years, to improvement work, betterments and equipment, thereby increasing the operating efficiency of the system very materially and enlarging its ability to move the tonnage routed by this line. Between 1896 and 1907 the Denver & Rio Grande appropriated $12,185,000 to the benefit of the property without increasing fixed charges. The reconstruction of the Fort Smith division of the St. Louis & Iron Mountain road, at a cost of between $3,000,000 and $4,000,000, was largely paid for from earnings, and it has been the policy of both that company and the Missouri Pacific to set aside each year a very liberal allowance, about $3,000,000 in 1907, to apply to betterments and property.

It is safe to say that in the past five years the Gould system has "plowed back" into the properties, comprising 17,000 miles of road, the sum of $50,000,000, or the equivalent of nearly $3,000 per mile, and that in the past eight or ten years the amount has reached $75,000,000. This is all equity for security holders without any increased burden in the shape of higher interest charges.

MECHANICAL

MASTER BLACKSMITHS' CONVENTION.

The Cincinnati convention of the International Railroad Master Blacksmiths' Association will always be remembered as one of the most successful and most pleasant meetings in the history of the organization. The master smiths did themselves proud in their deliberations. There was a large attendance and prompt business methods were employed to bring about results. The opening session was addressed by Mayor Markbreit, of Cincinnati, who gave the railway and their friends a cordial welcome to the city. He called their attention to the interesting points of the city which are worthy of visiting. A fitting response was made by Mr. W. W. McLellan, formerly president of the association. Mr. McLellan said that the western people like a booster, and he was glad to see that disposition in the mayor of Cincinnati.

One noticeable feature of the convention was the goodly number of ex-presidents in attendance, among whom were: Messrs. S. Uren, Jas. Walker, W. W. McLellan, John McNalley, G. A. Lindsay, Thos. Keane and J. S. Sullivan. The convention was also honored by the presence and voice of one of its most honored and beloved old members in the person of Col. Harry Jeffrey, who has retired from service on account of being blind. Mr. Jeffrey often took part in the discussions.

The report of Secretary Woodworth showed a healthy growth of the Association by new members and a neat balance in the treasury. Immediately after the opening addresses and reports, the convention went into business session and handled the topics selected last year, the full list of which were published in the August issue of the Railway Journal. All topics were reported on by committees and more or less discussed by the members.

Mr. J. Conners, chairman of the executive committee, reported the action of his committee in procuring an official button for the Association which were to be sold to the members for 25 cents each. Those in attendance were eager in securing them. It is a neat, attractive button, bearing the initial of the Association's title.

PLEASANT INCIDENTS.

After the close of the morning session of the second day, two pleasant incidents transpired that will long be remembered by those in attendance. The members, ladies and other friends, assembled in the parlor of the Grand Hotel, after which Mr. W. W. McLellan, in behalf of the ladies, presented Mr. Jeffrey with a handsome cane. Mr. McLellan made a most appropriate address which, with the sentiment of the occasion, touched the hearts of all his hearers as well as effected very perceptibly the feelings of the noble recipient of the gift. Col. Jeffrey endeavored to make a response, but words were inadequate to express his feelings. Mr. Geo. H. Williams was next called upon for remarks, when in a neat, witty speech took ex-President J. S. Sullivan and Mrs. Sullivan by surprise in presenting to them, in behalf of the members and friends present, a handsome silver tea service and a set of silver knives, forks and spoons. Mr. Sullivan though deeply impressed by the tokens of loving remembrance, made a most pleasing response, thanking his friends for the surprise at hand.

As to the social program provided by the railway supply men, the lack of space forbids us to publish all the pleasant things enjoyed by the members and ladies. It can be understood that a fine time was experienced by all when it is known that among the delightful features were a trip around the city by parlor trolley car, boat ride to Coney Island and return, tally-ho ride, visit to Lagoon Park, Kentucky, banquet and vaudeville at the park, also visit to the places of amusements in the park, and a visit to the Zoological Garden of Cincinnati. Every feature combined to make the convention a most pleasant one in every way.

As an educational feature for the members, the representatives of the Goldschmidt Thermit Co., in connection with mechanical department of the Queen & Crescent road, gave an exhibit on thermit welding, by repairing a frame on an engine of the road at the company's shop at Ludlow, Ky. The demonstration was a pronounced success and was interesting from a mechanical and scientific standpoint.

NEW OFFICERS.

The last session was devoted to the conclusion of topic reports, unfinished business and election of officers. The Association was addressed by Mr. R. L. Williams, who spoke eloquently of the splendid mission of the railway master smith and incidentally suggested that the members are in a position to help the railroad companies in a political way as against the attitude of hostile legislators. Many of the members paid high tribute to the memory of R. A. Mould and Ed. Boyle, both of whom passed away since the Montreal meeting. A vote of thanks was extended to the supply men, to the management of the hotel, to President Judy for the faithful management of his office, etc. Ex-President Sullivan paid a compliment to the ladies in behalf of the Association, stating that the meetings would not be much of a success without their presence at the meeting. The following officers were chosen for the ensuing year: President, J. W. Russell, Renova, Pa., P. R. R.; first vice-president, G. W. Kelly, Elizabeth, N. J., Cent. Ry. of N. J.; second vice-president, John Conners, Montgomery, Ala., A. & W. P. Ry.; secretary-treasurer, A. L. Woodworth, Lima, O., C., H. & D.; chemist, G. H. Williams, Boston, Mass., with B. M. Jones & Co. President Russell appointed the following executive committee: J. S. Sullivan, Pa. Lines, Columbus, O., chairman; Geo. Hartline, Collinwood, O.; M. F. Gorey, Ft. Worth, Tex.; F. F. Hoeffle, Louisville, Ky.; Thos. Keane, Hilburn, N. Y. Niagara Falls, N. Y. was chosen as the place of meeting for 1909.

NEW MEMBERS.

The following is the list of new members reported by Secretary Woodworth: Fred B. Nielson, O. S. L., Pocatello, Ida.; Walter Stock, Michigan Central, Jackson, Mich.; Dixie Russ, L. & N., Birmingham, Ala.; C. A. Slenker, L. I. Ry., Morris Park, N. Y.; William H. Iseley, Middletown Car Co., Middletown, Pa.; W. F. Cler, A. C. L., Montgomery, Ala.; William J. Myers, Indianapolis Union Ry., Indianapolis, Ind.; E. A. Kirsheman, P. M., Grand Rapids, Mich.; J. J. Cunningham, P. M., Ionia, Mich.; J. W. Smith, I. C. Ry., Paducah, Ky.; A. J. Hansgen, N. & W. Ry., Portsmouth, Ohio; C. T. Humbert, T. & B. V., Teague, Tex.; W. H. Jamison, Santa Fe, Needles, Cal.; John J. Donahue, L. & N., Covington, Ky.; Reinhold Marondi, Illinois Steel Co., Chicago; E. J. Sheldon, D. T. & I., Jackson, Ohio; J. T. Nelson, L. & N., Corbin, Ky.; Emil Herscher, Cotton Belt Ry., Pine Bluff, Ark.; Robert McDougal, G., F. & A., Bainbridge, Ga.; John Jenkins, L. & N., New Decatur, Ala.; H. D. Wright, L. & N., Louisville, Ky.; Pat McCue, L. & N., Howell, Ind.; A. J. Alexander, M. & O., Jackson, Tenn.; D. Hayes, N. Y., C. & St. L., Chicago; H. L. Weitzel, B. & S., Dayton, O.; John Wolfe, Acme Machine Co., Cleveland, O.; D. H. Morgan, S. A. L., Portsmouth, Va.; M. F. Gorey, S. W. Mach. Assn., Ft. Worth, Tex.; E. H. Bruer, C., R. I. & P., Cedar Rapids, Ia.; John Moran, Bethlehem Steel Co., Bethlehem, Pa.; Hugh Flynn, S. P., Oakland, Cal.

LIST OF MEMBERS IN ATTENDANCE.

The following is the list of members in attendance:

A. L. Woodworth, C., H. & D., Lima, O.; Thomas F. Keane, Ramapo Iron Works, Kilburn, N. Y.; W. J. Shea, I. C. Ry., McComb, Miss.; J. W. Russell, wife and daughter, P. R. R., Renova, Pa.; J. S. Sullivan and wife, Pennsylvania Lines, Columbus, O.; E. C. Cook, Railway Journal, Chicago; W. Donahue, P. R. R., Trenton, N. J.; C. A. Slenker, L. I. Ry., Morris Park, N. J.; Thomas McDonough, Big Four, Urbana, Ill.; W. F. Cler, A. C. L. Ry., Montgomery, Ala.; William H. Iseley, Middletown Car Co., Middletown, N. Y.; J. George Jordan and wife, S. P., Houston, Tex.; John Carruthers, D. M. & N., Proctor, Minn.; E. Dixon, W. & L. E., Toledo, O.; Arthur Hughes, L. E. & W., Lima, O.; George H. Judy, B. & O., Pittsburg, Pa.; Charles Reinhart, American Brake Co., St. Louis; James Walker and wife, C., B. & Q., Aurora, Ill.; J. Bloom and son, L. S. & M. S., Chicago; D. S. Quigley, Big Four, Wabash, Ind.; W. W. McLellan, Denver; D. T. Hughes, Clover Leaf, Frankfort, Ind.; George Massar, wife and son, Q. & C., Ludlow, Ky.; J. J. Ryan and wife, B. & O. S. W., Chillicothe, O.; Arthur Stockall and wife, Intercolonial, Moncton, N. B.; John Conners and two daughters, A. & W. P., Montgomery, Ala.; A. J. Alexander, M. & O., Jackson, Tenn.; William F. Stanton and wife, J. A. Fay & Egan Co., Cincinnati; William Price, Central Ry. of N. J., Ashley, Pa.; Charles E. Lewis, Northern Central, Baltimore, Md.; C. H. Williams and daughters, Cincinnati; Charles T. Miller, I. C. Ry., Mat-

toon, Ill.; H. R. Deitz, wife, daughter and two sons, I. & G. N., Palestine, Tex.; George A. Hartline, L. S. & M. S., Collinwood, O.; Arthur Lindseth, L. S. & M. S., Collinwood, O.; James Grins, N. Y. C., Depew, N. Y.; John J. Donohue, L. & N., Covington, Ky.; C. K. Abbott, wife, son and daughter, Cotton Belt, Tyler, Tex.; Henry Harris, C., R. I. & P., Horton, Kan.; George Lindsay and daughter, E. & T. H., Evansville, Ind.; J. J. Donnelly, Southern Ry., Atlanta, Ga.; Eugene R. Kirsheman and wife, P. M., Grand Rapids, Mich.; William J. Mayer and wife, Michigan Central, Detroit, Mich.; T. J. McCann and wife, Erie Ry., Cleveland, O.; Henry Thompson, C. & N. W., Kaukauna, Wis.; George W. Kelly, Central of N. J., Elizabeth, N. J.; M. S. Clarke, H. & T. C., Houston, Tex.; C. A. Sensenbach, P. R. R., Sunbury, Pa.; P. J. Connolly, Erie, Jersey City, N. J.; James T. McSweeney, B. & O., Garrett, Ind.; John Cunningham, P. M., Ionia, Mich.; J. J. Godsill and wife, C., B. & Q., Galesburg, Ill.; George Auld, W. & L. E., Canton, O.; John McNally, C. & N. W., Chicago; J. W. Smith, Central of Ga., Savannah, Ga.; Harry Jaffrey, Louisville, Ky.; L. Hoffman, I. C., Centralia, Ill.; William J. Myer, Indianapolis Union Ry., Indianapolis, Ind.; H. Pentecost, American Locomotive Co., Dunkirk, N. Y.; P. T. Lavinder, N. & W., Roanoke, Va.; A. Elliott, B. & O., Philadelphia, Pa.; M. Copps and daughter, F. E. C., St. Augustine, Fla.; A. J. Hansgen, N. & W., Portsmouth, O.; J. W. Smith, I. C., Paducah, Ky.; F. F. Hoeffle, L. & N., Louisville, Ky.; A. E. Storch and wife, C., H. & D., Indianapolis, Ind.; S. Uren, Sacramento, Cal.; Robert Henderson and wife, C. & N. W., Baraboo, Wis.; Henry Manycot, C., H. & D., Cincinnati; John Tootell and wife, C. & N. W., Chicago; W. C. Schofield, I. C., Chicago; A. B. Stockall, Intercolonial, Moncton, N. B.; D. H. Morgan, S. A. L. Ry., Portsmouth, Va.; E. B. Barlow and wife, I. C., Clinton, Ill.; A. V. Esping, Pa. Ry., Chicago; Max Blum and wife, W. & L. E., Norwalk, O.; W. V. Laizure, Pa. Lines, Dennison, O.; E. N. Campbell, Pa. Ry., Indianapolis, Ind.; H. L. Wertzel, B. & S. Car Co., Dayton, O.; Joseph Northend, Erie Ry., Meadville, Pa.; G. A. Bolam, Cincinnati Car Co., Cincinnati; J. A. Hughes, Chicago; Richard Tynan, Erie, Galion, O.; F. P. Deissler, B. & L. E., Greenville, Pa.; Arthur Bennett, C., M. & St. P., Milwaukee; T. R. Stoner, C., R. I. & P., Chickasha, Okla.; J. A. Purkey, Big Four, Delaware, O.; John P. De Ford, Southern Ry., Knoxville, Tenn.; John Younk, Big Four, Indianapolis, Ind.; M. F. Gory, S. W. M. Co., Ft. Worth, Tex.; E. H. Bruer and wife, C., R. I. & P., Cedar Rapids, Ia.; H. D. Wright, L. & N., Louisville, Ky.; A. J. Hansgen, N. & W., Portsmouth, O.

THE RAILWAY SUPPLY FIRMS.

Too much credit cannot be given the railway supply representatives who entertained the convention crowd on an elaborate scale. Amusements with various features were arranged for the social welfare of the ladies and men. The following is the list of firms represented at the convention: Ajax Mfg. Co., Cleveland; Crucible Steel Co.; Edwin R. Kent & Co., Chicago; Hobson, Houghton & Co., New York City; Williams White & Co., Moline, Ill.; Ewald Iron Co., St. Louis; Railway Materials Co., Chicago; The Acme Machinery Co., Cleveland, O.; Firth-Sterling Steel Co., Chicago; The Harbison-Walker Refractories Co., Pittsburg, Brown & Co., Pittsburg; Crerar, Adams & Co., Chicago; Jessop Steel Co., Cincinnati; Miles-Bement-Pond Co.; E. R. Morrison & Co., Cincinnati.

The Railway Supply Men's Association elected the following officers for the following year: President, J. T. Stafford, E. R. Kent Co., St. Louis; treasurer, F. Baskerfield, Crucible Steel Co., Chicago; secretary, Charles Kopenhoefer, E. R. Morris & Co., Cincinnati, O.

LADIES' AUXILIARIES.

The Ladies' Auxiliary of the International Railroad Master Blacksmiths' Association were favored with a series of splendid entertainments, which were provided by the supply men for their special benefit. The following officers were chosen: President, Mrs. George H. Williams, Boston, Mass.; vice-president, Mrs. Arthur Stockall, Moncton, N. B.; secretary-treasurer, Mrs. E. B. Barlow, Clinton, Ill.

PRESIDENT JUDY'S ADDRESS.

To the Members of the International Railroad Blacksmiths' Association: I am glad at the opening of the sixteenth annual convention to be held here in the great city of Cincinnati, Ohio, that I as your president have been spared to address this body.

When we last met in convention at Montreal, Can., August 21, 1907, about one year ago, if you will remember, it was thought by many that our meeting at Montreal would not be a success from the fact of having to go out of our country, that our members would not be able to procure the transportation to and from Montreal, but, as you all remember, we had no difficulty in that way. The companies that we represented attended to that part and we had the proper transportation and our meeting was a grand success, both as a mechanical and social meeting. But for the year that has passed, what is the record yet remains to be seen. How have we progressed in our mechanical work, what changes have we made will be brought out at this convention. Your different committees have all had their subjects and their reports will show up the work.

But this morning I stand before you probably as no other president ever did under the conditions that now exist. Times since last November have been very dull from a cause over which we had no control. All branches of commercial trade seemed almost to have ceased doing business, the result of which was a great reduction in the manufacturing interests of this great country, almost all of our great manufactories closing down their works. That, of course, stopped the wheels of commerce, which not only put thousands of men and women out of employment, but almost stifled the railroad business, the freight and passenger business going down so low as to cause the railroad companies to make great reductions in their expense. On account of little earnings, this then fell upon us as railroad employes, our shops, many of them, being almost closed down, while some were entirely closed, putting a large number of our men out of employment all over the different railroads.

While I feel the railroad companies did all they could to keep their employes as long as they could, they at last were compelled to fall in the line and make these great reductions, which have been a very sad affair. We are very thankful that is has been no worse.

Now, as to the work of our association. Under the great trials of which I had spoken, there was much good work done, though we were compelled to work with less men, on account of our companies not making expenses. We were compelled to use great judgment and good management to get the work out that was required, at as little cost as possible. That is, of course, our motto. Let us look at some of the things done.

I want to call your attention to the great work of welding frames on engines without taking them off. This is being done very extensively all over the country on our railroads. When an engine comes in with a broken frame and has not made the mileage required it to make that entitles the engine to classified repairs, the frame is welded or repaired on the engine and the engine returned to service again, with a very small cost and a short delay in the shops while undergoing this frame repair; thus you can see saving money for the company by putting the engine right back in service. This is being done in different ways, such as by welding with oil and welding by natural gas, or repairing by Thermit process. All of the above have proven to be very good plans and have been coming to the front very fast the past year.

Then, again, I want to call your attention to the great advantage that has been made by the use of high speed steels; what wonderful speed has been made over the carbon steels. For tire turning, boring axles, turning, and, in fact, our men do not want anything but high-speed steel. They have gotten out of that old rut and set a much higher pace. This all shows what progress is being made by the different mechanical associations in conventions. This shows the great mechanical benefit that is brought about by these associations.

Owing to the unsettled conditions of our country our association has not increased in membership as it would have had times been different. In the last year we were compelled to change our records. Our list of membership has been broken. Two of our active members, men that had helped to organize this association sixteen years ago, and worked with us hand in hand, have been called from us by death. They were R. A. Mould and Edward Boyle. Mr. Mould of the Union Pacific Railroad shops at Omaha and Mr. Boyle of the Chicago, Burlington and Quincy Railroad shops at Aurora, Ill. Ladies and gentlemen, words cannot express our feelings today when I speak of these two men. They were men of the class up to date, trying to improve every opportunity to advance their department of work. Again, they were men who did by their brother foremen what they could do to benefit them. We could always depend on them as active

members. We certainly will miss them, and will always, when in convention, remember them.

I have had a lot of letters from different members of the association showing their interest in the work, and I know there has been great work done, and yet there is room for much more in the way of improvements to be done. I feel that the I. R. M. B. Association will continue to advance. Thanking you for your kind attention and wishing you all a successful year

J. W. RUSSELL.

To the members of the International Railroad Master Blacksmiths' Association their new president, J. W. Russell, needs no introduction. His faithful service and many strong personal characteristics have made him well known and well liked. Mr. Russell seems to have the faculty of making a record wherever he is associated, whether in the association, the company's shops or in his home town as a fellow citizen. It was on May 10, 1876, that Mr. Russell entered the service of the Pennsylvania at Renova, Pa. After about 20 years of service at that point he was made assistant foreman of the smith shop, and on January 1, 1906, he was made

J. W. RUSSELL.

master smith, the position he now holds at Renova. His life work, as can be seen, has been with one company, at the same point and in the one shop. As an able mechanic Mr. Russell has won that distinction by keeping abreast of the times. The fact that he is an earnest worker in the association which has just honored him with the presidency is evidence that he is a man of mechanical aspirations and ability. Mr. Russell has served the association as chairman of the executive committee, second vice-president and first vice-president. His past service specially fits him for the present position as executive head of the organization.

It is claimed that during the past year 65,000 new comers settled along the Rock Island system.

HIGH SPEED STEEL.

The following paper was read before the International Railroad Master Blacksmiths' Association by Mr. J. S. Sullivan of Columbus, O., Pennsylvania shops:

Little can be said in addition to what has been published in our mechanical journals. I am not familiar with anything new that has not been given to the public. I find in the treatment of the high speed steel all that is required is care in heating it. It is something new and has not been in the market but six or seven years, and we are learning the nature of the steel more each year, and I believe the best way to

CONVENTION CRONIES.
D. S. QUIGLEY, CHAS. REINHART, M. S. CLARKE.

bring this subject more fully before the meeting is by requiring members who are working this steel to give their experiences in working it, to the meeting.

I feel it useless to go into the detail as to how this steel should be treated, as the manufacturers give detail instructions how the steel should be treated, and I believe by following the instructions given by them you will have good results. We received instructions from one maker of high speed steel to use boiling water to harden the cutting edge, and will say it did very well, but I found in redressing the tool it had a number of little cheeks or cracks at the cutting edge, requiring the point of the tool to be cut off. We have had better results by using the fan blast with an eight-ounce pressure; in fact, that is what we use in cooling the point of the tool. In working the steel, we work it at a high heat to forge the tool into the shape required, and when this is done we lay the tool down in a perfectly dry place to cool. When the tool is cooled off, it is taken to the tool room to be ground to the required shape and returned again to the tool dresser to harden. We heat the cutting surface to as high a heat as possible without burning off the point and put point under blast, care being taken not to heat any farther back from the cutting edge than possible. The tool can be heated in an ordinary forge by building a hollow fire, care being taken not to let the point or cutting edge of your tool come in contact with the coke. We have also hardened the tool in oil by heating the point or cutting surface to as high a heat as it will stand without dropping off, and then quench the point or cutting edge in the oil, and receive excellent results from the tool.

Some makers of high speed steel will not permit the use of anything but compressed air to cool the cutting edge of the tool. I feel that the high speed steel is still in its infancy and I expect to hear great things accomplished by it in the future. The high speed steel can be very readily annealed by using powdered charcoal. If small pieces are to be annealed, we use a six-inch gas pipe by plugging up one end, putting in your steel, packing the charcoal around it, screw a cap on the end of the pipe, let same be subject to a good heat for five or six hours, and let it remain in the furnace and cool off with the furnace, and while still black hot put pipe and contents in the lime box until perfectly cool. You will then have your work soft enough to machine to any shape required. For the information of the members I have attached a blueprint giving the results of a test made at the Columbus shop during the month of March of the present year, which is at your disposal. If your committee on high speed steel has been instrumental in producing a friendly discussion on this subject, we feel that our labors have not been in vain and feel amply repaid for our labors and that the members may profit by it.

MAKING AND REPAIRING LOCOMOTIVE FRAMES.

The following papers were presented at the Cincinnati meeting of the International Railroad Master Blacksmiths' Association on the above topic:

Paper by Mr. A. W. McCaslin:—On one occasion a gentleman stopped an old negro on a crowded street and asked him to change for him a twenty dollar bill. The old darky said, "Why, massa, I never seed a twenty dollar bill; never had twenty cents of my own, but I thank you for the compliment just the same."

That is the way I felt when I learned that I had been named as one of the frame committee. I cannot increase my opinion of self sufficiently to permit me to think that I can say anything that would add to or in any way improve on the methods of making or repairing locomotive frames as given in many reports by many of our members who are thoroughly competent to do the work in the manner that in many years of experience has proven to them to be the best. The experience and clearly explained practice given in several reports on the above subject to this Association in the last few years by such men as Messrs. S. Uren, Jas. Walker, John Buckley, W. W. McLelland and others who have each served two average lives' times in the manipulation of iron and steel, and who, while teachers in the art of blacksmithing, still remain students, is sufficient gurantee that the making of new wrought iron frames and the repairs to both iron and steel frames on most of our railroads is being cared for in the best manner that brain can conceive or skill apply on the P. & L. E. R. R. We repair some of the engine frames, as many others do at this time, without removing them from the engine, and we have very good results in the heating, and as far as the appearance of the completed job superficially would indicate. I do not say that we weld these frames, for like Mr. Uren, I do not consider such an operation made without a lap of some kind deserving of the name weld: in fact, this butting of frames is simply a burlesque on proper welding. I have satisfied myself as to the virtue of this so-called weld by making several of the same in shop, granting them many advantages that cannot be offered on an engine and invariably they would separate, showing very little resistance from a light blow crosswise the weld under a small steam hammer; the brakes would show that a union of the metal had been effected but would also show a very feeble tenacity, yet knowing these facts we are very much in favor of repairing frames this way wherever it is possible to spread the frames and take the heat, as it frequently keeps the engine in service until it comes for general repairs, and this means quite a saving in money to our companies. We have what we think splendid burners and build a very satisfactory furnace with standard size fire brick. Mr. Shoenberger, foreman blacksmith, in the Ft. Wayne shops in Pittsburg, kindly furnished me the original design for both of them—many of you may be using the same design—will furnish blueprints with this paper. I build the furnace with the bottom inclined as shown in blue print, making it about one inch lower at its center than at the fuel holes at the ends; have also added a small slag hole at the center near the bottom so the slag will not gather and be blown up against the frame; we use two burners to this furnace and use crude and carbon oil as fuel, and take a very slow heat. The bottom inclined as mentioned helps to prevent the wasting of bottom side of the frame and gives the heat a start to return over the top of the frame and out the peep holes. When the heat is complete the furnace is pushed away into the pit and the work completed with light sledges with side V welds. I do not approve of making the side V under a heavy steam hammer without using a channel tool; I do approve of making this weld under a light steam hammer or with heavy sledges. When making this weld under a heavy steam hammer the laid-in pieces travel or flow both ways from its center crosswise the frame without interfering or resistance and does not spread enough with its angles to increase the lap, or weld properly against the wall of the V cut in the frame; that is, it cannot weld properly while flowing in a direction paralleling the walls of the V in the frame. This laid-in piece will travel along the bulk of the frame, preventing the walls of the V cavity following. If cut off the ends of this weld, it will appear all right; the drag of the iron being just sufficient to hide the weld and the iron in the piece laid in will not be compact near its end; neither will the weld near its ends be meshed to a sufficient depth. This will be entirely different as well as a satisfactory piece of work if done under a small steam hammer with light blows or with heavy sledges. In this case the laid-in piece should be properly made and the over-hang not cut too close to the frame; then side heats drawn well up to the front of the V piece and this stock driven back into the weld, and at the same time form a lap where it is so much needed, that is, at the end of this weld on top and bottom of frame back.

Again, if the side V weld is made in the frame under a heavy steam hammer there should be a heavy channel tool placed on top. This tool, if eight inches wide, cut out two and a half inches deep, and half inch longer in the crown and three-quarters longer at the mouth than the cross-section of the frame, that it may release readily, will shear off the extra stock, prevent the laid-in piece from lengthening endwise and will drive it back into the weld, thus forcing it against the wall of the V and lengthen the lap lengthwise the frame. Then take a second heat on the laps. There will be no holes or openings at the points of this weld. This is not only the most convenient weld to make in repairing frames but it is the best. I certainly agree with Mr. Uren that the lap weld is the best weld made, but it is very seldom we can make this weld in new or repaired frames.

Permit me to say at this time that we sometimes make in front sections of frames and large hammered piston rods what we call a lap and V weld. We flatten the end of each piece nearly one-third, make the lap and weld as shown in blue print, then drive back the ends of the laps and lay in V, which insures a solid center and a solid side opposite each V. This throws the laid-in pieces about six inches apart. This weld will elongate evenly when being reduced and will not slip or shear as the ordinary lap or V weld. In my opinion the end V is the worst weld made unless separate heats are taken and the parts put together with a heavy ram and a second heat taken on the laps. It takes time to prepare this weld. The parts are often placed together in the fire, but I never could quite understand why some prefer drawing a heat through a five-inch square bar than to heat to the center from one side with the advantage of seeing heat that enters into the center of the side V weld, with the uncertainty of the end V welds being welded at all in the center, its liability to contain dirt, and its general successful disposition to separate at the point of the V. I avoid this weld when it cannot be rammed or forced together. Am very anxious to learn something through the discussion of the reports of this committee

Paper by Mr. J. T. McSweeney, B. & O.: Making locomotive frames and repairing them has been the subject for a great deal of discussion on the part of the Master Blacksmiths Association and the railroad companies of this country, and yet we have only commenced the one thing uppermost in the minds of the mechanical world, that is, to eliminate the breaking of frames and how to repair them the cheapest when broken. We, as Master Blacksmiths, wish to do all we can to lessen the expense of repairing frames and are willing to put our best efforts forward to do this, as well as to

make new frames that won't break; for it proves a great loss to the company when frames are broken.

The B. & O. R. R. does not make any new frames at the company's shop at Garrett, Indiana. Our work consists of repairing frames, and we do this in the smith shop or under the engine in the cheapest way we can conceive. In the smith shop we handle our frames with a screw lift and an angle iron wheel around the frame. Two men can turn this frame. When there is no heat on frame we use six men when making a weld. We make our welds with sledges and under steam hammer when we can. A V weld we make with sledges, as I think the iron is driven together and not stretched as it would be if made under steam hammer. All welds on main frame rails are made with lap welds and V welds. The lap welds we make, if possible, under the steam hammer; this gives you a chance to see that both pieces have the proper heat before putting them together. With side heats on same you can be sure this weld is not going to break again in that place.

In making a fork weld or an end V weld the heat should be taken separate. It is a hard matter to draw the heat through to the center point of weld of this kind. I do not consider, in my judgment, that this is a good weld. Welding on a pedestal jaw or leg to back of frame in this manner with separate heats and side heats makes a good weld, but it takes a great deal of time and labor to prepare this weld. It depends a great deal on the place the frame was broken as to how it shall be repaired. Every man thinks his way is the best until he tries or sees a new way.

WELDING FRAMES WITH OIL UNDER ENGINES.

I cannot say that I have changed my methods in making this kind of a weld since last year. I have put a good many new half pedestal jaws on frames under engines where end of frame for pedestal brace was broken off and have had very good success with all these welds. We spread frame with jack and a piece of iron with slot cut in one end and two wedges, driving the wedges from both sides. We do not have much trouble in getting them apart. Have made two welds of this kind in thirteen hours with three men. We build our furnace out of ordinary fire brick, with a hole for burner and a peep hole. Our furnace stands on three posts made from scrap flues or old pipe, anything to hold the plate to start furnace on. We use hooks to pull posts from under furnace, allowing the bricks to drop in the pit. We use a small ram made in shape of a flater or face of sledge on the end of a bar to weld up the inside of frame and weld up the outside with sledges. With the exception of the last weld I have used a bar of the same kind as I used on the inside. We use a heavy ram at the back end of frame to drive frame to length and find this is better than clamps, for so often you cannot get the clamps on in the right place; also, a jack to keep frame apart while taking heat. When heat is ready this jack is taken out. By doing this the heat reaches the center of frame.

Our furnace is built four inches from frame to bottom of furnace and three inches on top and sides. The burner is placed so the flame does not strike the frame, the flame passing under the frame, then around over the sides and top. We use crude and carbon oil (twelve to fourteen gallons) to make a weld. In this way there is no waste to your frame. By the time you have a heat and frame rammed to length, the frame is larger by a quarter of an inch all around than it was when you started to weld, the oil coming to the burner by gravity with seventy to one hundred pounds of compressed air. You must be governed by the length of your heat as to how much your frame will shorten.

WELDING OF FRAMES WITH THERMIT.

The B. & O. R. R. has made a number of welds with Thermit this year at different shops along their line of road. There were two made at Garrett which have proven a success so far. Both engines were class B-18 with steel frames broken in different places. This class of engine has given a great deal of trouble in breaking main frame, being a cross compound. At first the frames broke over the first pair of driving wheels. The frames at this point on some of those engines have been increased from four inches by five and a half to five inches by eight inches; also some have new steel ends put on. The parts that have been increased have not broken. The cost of making one of those welds with Thermit was twenty dollars for material without any labor.

IRON AND STEEL—EARLY HISTORY.

BY GEORGE H. WILLIAMS.

Iron and steel in their earliest application of the useful metals are involved in much obscurity. Archaeologists have not been able, in spite of diligent investigations, to determine at what period in the world's history iron was first smelted. Nor are we much better informed concerning ancient countries which first acquired a knowledge of metallurgical processes. Conjectures and hypotheses must be employed to fill up many voids in canonical and classic references to this interesting subject.

Modern researches, however, have disclosed evidence of a period in the history of all nations of antiquity when their inhabitants, as yet unacquainted with the useful metals, made use of bloodstone and the horns and bones of animals for implements of war and the chase. This period has been divided in two ages, called respectively the Palaeolithic or old stone age, and Neolithic or new stone age. The former was distinguished by rude and unpolished implements without any known traces of metal, and the latter evidencing a knowledge of such metals as silver and gold, and a considerable advance in civilization. In the bronze period which followed, the copper was hardened by the addition of tin. The metal thus obtained was fashioned into weapons and utensils suitable for various uses. Much learned controversy has taken place concerning the duration of the ages antecedent to that of iron. Some writers argue that the one age was concurrent with the other. Others claim that the age of iron in history is many centuries later, and is typical of a much more advanced age of civilization than the ages of stone and bronze. However, there is good reason to conclude that the principal European nations must have emerged from stone ages nearly 3,000 years before the Christian era, while it must have terminated at a still earlier period in the countries stretching from Egypt to the far East.

The art of extracting metals from their ores indicates a higher development of knowledge than the working and casting of native copper. The classic story is that prehistoric man made his first acquaintance with iron by accident. The burning of the forests on Mount Ida caused the fusion of ores of iron and made known to the inhabitants a new metal. This account is accepted by some writers as substantially true. But its authenticity is founded more upon the theory of probability than anything else. It would be more open to acceptance if supported by any real evidence that the Phrygians were regarded by the Greeks as being versed in the metallurgical arts. But records on the other hand assign the discovery of iron to Vulcan, the deity who presided over fire, and was the patron of all artists who worked in metals. Newton supposed Vulcan to be identical with Cinyras, King of Lemnos, who invented the anvil, the tongs and the smith's hammer, and who was the only king celebrated in history as a worker in metals. Sacred history tends to place the discovery of iron in still greater uncertainty when it refers to Tubal Cain, a descendant of Cain, the son of Adam, as an instructor of every artificer in brasses and iron. Putting on one side, however, the doubt and obscurity attached to the original discovery and application of iron, its antiquity has been established by the writings of Diodorus, Siculus, Pliny, the elder Herodotus, Artistotle, and other writers, while in modern times the testimony of the ancients has been confirmed by the researches of Layard at Ninevah

and Troy, Rhind in Egypt and Wilkinson at Thebes. Many writers, and notably Basil H. Cooper, have concluded from inscriptions in modern times that the ancient Egyptians were familiar with the workings of iron. We learn not only from the canonical books that iron was made in Egypt at a very early period of the Hebrew wanderings, but also on inspecting the contemporary monuments at Thebes about 1500 B. C. that Wilkinson discovered, on which were pictures of an Egyptian forge and bellows, such as are used in Africa today. On the walls of the tomb of Thothmes the Third is the picture which shows the ore and tools together. From the heap at the center of the picture the burning flames are seen to issue; on either side of this heap were situated the bellows, which consist of flexible bags formed of animal skins and each provided with a board which was in the user's hands.

Basil H. Cooper, in his researches, holds that the hieroglyphics have well established the evidence of iron being known in Egypt as early as the sixth or seventh monarch of the first dynasty. Arguing that the Egyptians used the word "benipe" (stone of the sky) to signify iron, Lepsius says it cannot be doubted that there is established evidence of iron being known in Egypt as early as the sixth and seventh monarch of the first dynasty, and with this argument he also holds since the fourth dynasty, and even earlier, iron and the hardening, steelifying of it, was known. Still he adds: "It is very remarkable that in all the representations of the old empire, blue pointed instruments can scarcely be traced." Rhind, in exploring the tombs of Seban, which had not been opened, he believes, for nearly 2,000 years before, discovered on the doors of the inner repositories, hasps and nails of iron; but he found nothing to indicate that in the time of Seban the Egyptians made use of steel. Sir John Hawkshaw thinks it seems unreasonable to deny to the Egyptians a knowledge of steel, pointing to the fact that in the early paintings on the walls of tombs at Thebes, butchers are represented as sharpening their knives on pieces of metal colored blue which were most probably pieces of steel. Moreover, in the Great Pyramids a piece of iron was in a place where it must have been for 3,000 years.

It is stated that the Egyptians were masters of the art of hardening and tempering steel for cutting of porphry. Inasmuch as the neat and curious hewing and carving of obelisks, statues, pots, urns and other things from hard marbles, are now the object of admiration of the most skillful workmen who know not how to rough hew stones of that intractable hardness, it being evident they had some hard, sharp-edged metal tools. Again we are informed that those famous in the writing of the ancient accounts of nations had knowledge of engraving in porphyry, a stone which no tool will now touch.

The question of whether the fusing and casting of metals was known to the Greeks, has been a matter of controversy among antiquarians and archaeologists. The evidence of such knowledge is not so ample as that relating to their advancement in other arts and sciences. But it may now be regarded that however far they may have come short of originating the arts, the ancient Greeks followed them with considerable skill and success. Herodotus speaks of a class of men termed Curetes, who were brought into Greece by Cadmus, son of Agenor, King of that country, who made arms and edged tools for hewing and carving wood, which gave Minos, King of Crete, an opportunity of building a fleet and thereby gaining dominion of the sea. Day, however, who has investigated the subject, has concluded that the Greeks did not acquire the arts from the Egyptians, but from the Phoenicians. He believes that the production of steel by immersing bars of wrought iron in molten carburet of iron was practiced among the nations of antiquity in their progress westward; that it was brought from Egypt by the Greeks, established by them in the Mediterranean countries they occupied, whence it was acquired by the Romans and by them introduced throughout their vast western empire. Whether or not this be correct it is tolerably clear that the Phoenicians were acquainted with the use of iron. The fact is even established by Day himself, who elsewhere remarks that through the Greek translators we received the information that the workers in iron inscriptions exist in their language which could hardly have been produced without the aid of steel tools. Among others, the Moabite stone, found by Klein among the ruins of Diban on August 19, 1868, is inscribed in both ancient and modern times as to identify Tubal Cain, of which the term smith is, according to Cooper, a tolerable if not an exact rendering, thus leading to the inference that iron was not unknown in Phoenicia. For all the rest I perfectly agree with Mr. Cooper, but I certainly do not accept his opinion that iron embedded in ancient debris can possibly corrode and disappear without leaving a trace of its existence. But if iron was so rare and precious, must it not then have been at the time of Homer, how much more precious and rare must it then have been at the time of Ilium. By the objects of human industry I find here to have preceded the past by a long number of centuries. The Greek word for iron can leave no doubt that the first iron used was meteoric iron, and as Mr. Burch, of the British Museum, assures us, this is confirmed by the ancient Egyptian name for that metal. In the time of Alexander the Great, 355 B. C., the manufacture of steel appeared to have reached considerable perfection and to have been varied to suit special circumstances and uses. Daimachus, a writer of this epoch, tells us that of steel there is the chalybdic. This metal was used almost exclusively for axes, saws and chisels. Diodorus, in speaking of the ancient mode of manufacturing steel swords, mentions that the iron was buried in the ground and left there till it was wholly rusted. What remains was forged. The sabers made from it were so finely tempered that they would cut through helmets or sever a nail without spoiling the edge. Antigonus, having had a coat of mail made of Syfran adamant which was so hard that no dart, when even thrown by a machine, could produce a dent. It has been argued that this could not have been composed of any other material than steel. Pliny, the elder, makes reference to the use of steel which must have been quite an European commodity in his time—the middle of the first century of the Christian era. "By means of iron and steel," he says, "we build houses, hew quarries and cut in stone, yea, in wood. We use it for all other necessary uses of life." As to the process by which steel or nucleus ferri was obtained, Pliny only remarked that it was accomplished by much burning and firing, and he proceeds to add that "no kind of iron shall match in goodness the steel that cometh from Seres." In a second degree of goodness may be placed the Parthion iron, and setting aside these two countries, I know not where there are any bars or goods tempered of fine steel, for all the rest have a mixture of iron, more or less, generally in most parts of the world.

(*To be continued.*)

FOREMEN P. & L. E. SHOPS.

There are very few shops in the country that have a better record for results accomplished and for superiority of equipment than the shops of the Pittsburg & Lake Erie at McKees Rocks, Pa. When one has heard a great deal about the products of a plant, he is naturally interested to know the parties who are responsible for the work turned. The RAILWAY JOURNAL is indebted to Mr. F. H. Babcock of this plant for the accompanying group picture of the official heads of the various departments of the P. & L. E. shops. Reading from left to right they are as follows: Wm. Smith, machine shop foreman; F. J. Weidenkoff, assistant storekeeper; A. W. McCaslin, master blacksmith; George Miller, foreman carpenter; John Smith, master boilermaker; R. J. Macoubry, chief clerk; P. L. Redding, foreman erecting shop; D. J. Redding, master mechanic; W. E. Quest, foreman painter.

HEADS OF MECHANICAL DEPARTMENT OF PITTSBURG & LAKE ERIE, MCKEES ROCKS, PA.

THE APPRENTICE QUESTION.

The following is the committee report before the recent convention of the International Railway General Foremen's Association on "The Apprentice Question—How can we Obtain the Right Kind of Material and How can we Keep Them Interested? The Benefit of Night Schools for Apprentices Maintained at Company's Expense—Does Company Obtain Sufficient Benefit to Warrant this Expenditure?"

PAPER BY A. O. BERRY, ELKHART, IND.

The apprentice question has been engaging the attention of railroad men as well as the manufacturing corporations for the past eight or ten years and many prominent railroad men have been giving it very serious attention for the last four or five years. Several manufacturing corporations have quite elaborate systems for the instructing and educating of their apprentices and at the present time several of the large railroad corporations are establishing apprentice systems. There is very evident need of such systems when we consider what is required at the present time. For years past large amounts of money have been spent by the American railroads in perfecting rolling stock and in fact all equipment for the perfect and speedy operation of trains. The success, however, of all mechanisms and equipment in the end depends upon the intelligence with which they are handled, and no more important subject, I believe, is before the railroads today than that of the apprentice question.

Railroads have spent large sums also in equipping shops with high speed steel and heavy duty machinery, but if the intelligence and efficiency of the mechanics do not progress in a like degree with mechanical improvements, there is still a lack of efficiency and an unbalanced condition. It is also not so much a question of today as it is of the future and the place to start is with the boys by some rational apprentice system. The old way of hiring a boy out as an apprentice and leaving him entirely to himself to pick up such information relative to his trade as he could or as the foreman was pleased or had time to give him, is entirely inadequate to meet the demands of modern times or prepare for the future. The apprentices that are now our mechanics were developed in practical skill only, unless by their personal effort they worked out such knowledge as they could in their spare time evenings. They were expected to become journeymen in from three years to a life-time and the proficiency developed depended entirely on their own energy and personal effort. The result has been a body of journeymen about as varied as it is possible to conceive. I do not claim, however, even with a modern apprentice system and methods of instruction, that all apprentices will be developed to an equal degree of proficiency. This is just as impossible as it is for all men to think alike. What the apprentice system does do, however, is to give the ambitious apprentice a chance to advance as fast as he is desirous of doing in his four-year course, and through the personal effort of the instructor in charge of the work it brings the slower ones to a higher degree of proficiency than they could ever obtain being left to themselves. In a rational apprentice system, there is no stopping or graduating position. What is desired and aimed for is greater output and better work continually, and to produce this requires greater skill and more intelligence. I do not believe a system founded on college methods or even on high school methods will meet the present demands of the apprentice and interest him. I believe it is necessary to start from the beginning and by a system of development introduce such learning as the apprentice can see the actual need of in his everyday work. No formal or initial examination will give us a correct line to draw in the employment of apprentices. It will give us a knowledge, however, of how the apprentice has been spending his time previous to entering the ap-

prentice ranks. The question of interesting the apprentice and keeping him interested is a matter of showing him the way by opportunities presented to him and not by forcing him along any particular line of advancement. If the opportunities for advancement as given in the New York Central Lines Apprentice System are not sufficient to interest the apprentice of the present day, I am at a loss to say what will. The apprentice will not appreciate a lecture or class work as he would individual attention. By the system of instruction in the shop by a practical mechanic, and a period twice a week, for instance, in a drawing class with personal instruction from someone competent and interested in the work, I believe any body of apprentices should become interested.

Another feature which I believe is important in any apprentice system is systematic and periodical changes in all branches of the trade to be learned. This opportunity was not given to the old-time apprentice, or even the apprentice of late years. For example, within the past two years a young man presented himself at a railroad shop for employment, and after stating that he was just out of his time, he was asked the question, "Why is it necessary to lay out shoes and wedges on a locomotive?" and after hesitating a little, the young man replied, "So the engine will not sound lame." The benefit of night schools for apprentices is doubtful. I do not believe it would give as much benefit to as many apprentices as a school maintained at the first part of the working day. A boy, when through with the day's work in the shop, unless he is a rare case, is ready for recreation of some kind rather than classroom work; and while there is no doubt that night schools do a great deal of good to both apprentices and mechanics who attend of their own accord, I do not believe they are practical for the whole apprentice body. It is, therefore, a question as to whether the company obtains sufficient benefit to warrant the expense and the reply to this I would prefer leaving to local shop managements. However, if I may be permitted, I would like to say that a stated period of instruction to apprentices at the beginning of the day is surely going to pay for itself inside of a very few years, if it is not doing so already. While it is a hard matter to get an accurate line on, it is evident where this has been tried that it pays in conjunction with other features of a modern apprentice system, inasmuch as a great amount of money is saved by eliminating a per cent of spoiled work, and I can say from experience that spoiled work has been reduced to a surprisingly low per cent, due to the methods of systematic shop instruction. Another and apparently fully as important source of benefit is derived from the increased output. An apprentice, if left entirely to himself when given a new job will naturally approach it with timidity and is pretty well occupied in avoiding trouble with both the machine and the work and consequently does not work the machine or the tool to the full capacity. At the same time, if, under the old methods, the foreman starts the job with him, the shop loses the benefit of that foreman's supervision during that time. With a system of instruction that will teach the apprentices these points, the amount expended for instruction, I believe, is certainly a profitable investment for the company in saving of tools, and work and the increase in the output.

There is one more point I would like to bring out in connection with interesting the apprentice and that is to try to avoid employing those apprentices who are not naturally inclined to become interested. In order to accomplish this, I have seen a system worked out whereby prospective apprentices are hired as oilers and to run light machinery, such as bolt cutters and nut tappers. By the shop instructor observing such boys for a period of from three to six months, it should be a very rare occurrence to allow a boy to enter the apprentice list who shows no aptness for the trade. The particular case of running nut tappers or bolt cutters refers to only one trade, but the same principle can be applied to any or all trades in the railroad shops. I am not in favor of offering any financial bonus to apprentices on the completion of their time. I would consider each apprentice hired to be on a six months' probation. If during that time he shows himself apt, I believe that is sufficient to warrant carrying him to the completion with the ordinary amount of disciplinary methods. At the completion of an apprentice's time, I would give him papers signed by the local as well as the general officials under whom he has served his time.

PAPER BY W. POHLMAN, MIDDLETOWN, N. Y.

Now, as the selection of young men of the proper calibre and ambition to make good mechanics, is a problem that has occupied considerable time and thought of our most successful manufacturers for years, who have foreseen the necessity for the educated mechanic and they have gone so far as to attach schools to their shops for the education of apprentices, but I believe the most of them have been abandoned as an expensive experiment, owing to the indifference or lack of interest of the average apprentice boy of today, who generally is the son of an employe, who gets the opportunity to learn a trade through the long and faithful service of his father, or some other relative, and ofttimes through this, the young man is placed at a trade which he has no desire to learn, and this is more particularly the case in the railway shop than with the manufacturers or private shops, and, owing to the laxity of rules between the different railways in reference to the hiring of mechanics, the average young man leaves his trade when he has served about two years and goes to the next railway shop and hires out for full pay as a mechanic, instead of serving the full term of four years. Now, I presume someone will say, "How can they get along?" Well, the apprentice of today joins the union the first year he is in the shop and about one-half of the men in the railway shops are of the same class. They try and carry him along, and, as a rule, giving the company a poor class of mechanics and bad service, for which the railways themselves are to blame, as their rate of pay is most always below that of the manufacturer or private shops, who take the choice of the mechanics and the railway shop gets what's left. However, I will attempt to give you a few ideas that appear to me at this time and if they should suggest anything that will help you out in compiling your report, for the betterment or efficiency of the service, we shall all feel that we have been well rewarded for any time spent in the cause.

SUGGESTIONS AS TO RULES AND REGULATIONS OF APPRENTICES IN RAILWAY SHOPS.

In my opinion, it would not pay a railway company to maintain a school at their shop, for the technical education of apprentices, as now handled, as about eight out of every ten young men that start to serve an apprenticeship nowadays are very indifferent to study and not very ambitious to learn the practical part of the trade, and if they serve four years, they generally quit, and go to some other shop, through the advice of their associates, who tell them they must travel and work in other shops to get experience, and in such cases the company who maintained the school would derive no benefit for their expense, but I believe that it would be beneficial to the railway company to furnish, through the drawing department, about two lessons a month to each apprentice for home study, and when finished they be returned for examination by the mechanical draughtsman, who would mark them a percentage, according to the quality of the work. This would be a means of inciting the young men to self-study and teach them to correctly read drawings. This would cost the company very little, as one set of tracings would do for blue prints for all time, as copies of lessons. No apprentice should be hired to the machinist's trade under sixteen (16) years. He should be of good character and should have passed the primary grades in school in writing, reading, arithmetic and drawing. He should be hired on three months' probation, to give him an opportunity to decide if he is satisfied to learn the trade and the employer to satisfy himself the young man has the proper qualifications for a mechanic. Then, after three months, if agreeable to both parties, there should be some form of contract to be filled out and signed by the apprentice and his guardian and the employer, setting forth that the young man would serve four years apprenticeship, of not less than three hundred (300) days each, for which he shall receive .... per hour, first year; ...., second year; ...., third year; ...., fourth year, and the minimum mechanic's wages to start the fifth year. For the faithful performance of his duties and living up to the rules of the company, at the end of four years, he shall receive one hundred ($100) dollars as a premium, as I think the one hundred dollars would be an inducement for the faithful performance of the contract and would bring double returns to the company, and, at any time after signing the contract and before the expiration of four years, it can be annulled by mutual consent by the apprentice signing a contract that he will not enter the employ of any other firm at this particular trade and forfeit all claims to the premium. The apprentice is to be given every reasonable opportunity to learn the trade and changed at least once in six months to a different branch of the trade.

PAPER BY W. G. TARMOUR, NORFOLK, VA.

The average force of apprentices found in railroad shops may be divided into four classes as follows:

First Class—Boys who have had the advantage of fair

technical educations, and occasionally some experience in a drawing office, who, thus well equipped, enter the shop for the purpose of gaining the practical experience which they have found to be so necessary to a successful mechanical career. These boys are generally older than the ordinary apprentice at entering, and are steadier and more appreciative of the opportunities presented to them, applying themselves industriously to the work, and wasting no time in acquiring the practice they are hungry for. Some individuals of this class may try to impress the foreman or instructor in charge with their superior technical knowledge, even to the extent of becoming annoying at times, but by careful handling these lofty ones may be gradually brought down to their proper level without damage, so that by the time they have finished their apprenticeship, they are found to be good all around men, well balanced, and fitted for more or less responsible positions. As a whole, this class will be found to be more efficient than any other, and the boys might be obtained by keeping in touch with the heads of the different technical schools. Numbers of these boys are at present forced into other lines of business, through lack of influence to get them into shops where they might follow the work for which their education has specially adapted them.

Second Class—Sons of mechanics whose fathers and grandfathers were in the trade before them, and who though generally possessing nothing more than ordinary common school educations, and often not much of that, nevertheless enter the shop at an early age, mechanics by right of birth, ready to develop a talent handed down to them by heredity through generations of mechanics. They have lived in a mechanical atmosphere and have listened to shop talk since they were born. These are the boys who take to the work naturally, and who, if given the opportunity to acquire a technical education gladly avail themselves of it, realizing the deficiency in their educations more and more as they advance and come in contact with problems, which bother them, but which they see their shopmates of the first class handle with ease. To obtain boys of the second class, the foreman or instructor should inquire of their fathers in the company's shop and others in the locality, and keep well posted on the amount and age of this growing timber.

Third Class—This class is made up of sons of officials and employes in various branches of railroad service other than mechanical. These boys have not had the mechanical advantages of those in either of the preceding classes, although many of them may have received better general educations, but not with any particular trade or business in view, and after having dabbled a little in this or that occupation, are sent to the shop as a last resort. The whole class is virgin soil, and partakes more or less of the nature of a grab-bag, containing some prizes and a good many blanks. In point of numbers, this class is usually the largest in the shop, and may finally turn out as many good men as any of the others. It is up to the foreman to separate the sheep from the goats in the developing process, and when a boy is found, who after a fair trial finds the work uninteresting and simply drudgery, it is best for that boy and all concerned that he be relieved at once. It is not a difficult matter to secure boys of this class, as they usually come unsolicited and plentifully.

Fourth Class—This brings us to the fourth or last class of apprentices—the sports. These are the young men who might, under normal conditions, be placed in some one of the preceding classes, but who, owing to their fondness for staying out all night, must needs be placed in a class by themselves. The writer has known boys of this stamp who would have some business of a sporty nature ot attend to every night in the week, from a beer garden dance down to a chicken fight, and then come to the shop next morning, looking and smelling bad, with the one idea of finding some out of the way corner where they might obtain their much-needed sleep undisturbed, and be prepared for the next night's activities. Have known the space on top of the flues in a locomotive boiler to be converted into a boudoir, by the inexpensive addition of a piece of burlap, and the proprietor sleep peacefully therein all day long with his cheek in his pocket. Very few of this class come to realize the folly of their ways till too late, and the sooner they are weeded out the better for all concerned. I am now speaking of the "natural born, dead game" sports and not of the boys who occasionally are led astray and go on a pay-day spree, losing the next day to sober up in. They are at least decent enough to stay away till they are fit to be seen, and honest enough not to expect their employers to pay them while sleeping off the effects of a debauch. It is needless to advise where apprentices of the fourth class may be found. Nobody needs them, but they creep in among the others and every shop is likely to enlist a certain percentage of them unknowingly.

To Obtain the Right Kind of Material for Apprentices—It would seem that too much care cannot be exercised in enlisting apprentices, so as to feel reasonably sure that you are getting good material to start with, that your sweetness may not be wasted on the desert air. In this connection, it might be well to get out printed application forms with a foot note or fly leaf setting forth the requirements, rules, advantages, wages, etc., and have these distributed among technical schools and other educational institutions for boys, including orphan boys' homes, also to agents along the line of road, and to any others where the advertising matter would be likely to bring results. Applications should be accompanied by proper vouchers as to character, and if the applicant lives in the vicinity of the shop, the foreman or instructor should, if possible, make personal efforts to become acquainted with his habits and morals. Before entering the shop, applicants should be required to pass an examination in simple arithmetic, reading, writing and spelling, but this examination should be stiff enough to insure keeping out boys with practically no education.

To Keep Apprentices Interested—This question brings the foreman or instructor in charge to the front. Much, if not all, of the responsibility is his. Heaven help him. In addition to his being a capable, all-round mechanic with a good technical education, he should be a man of high moral character, able to command the respect of his boys at all times, also a close student of human nature, especialy that part of it which pertains to boys between the ages of sixteen and twenty-two years, or thereabouts. He must look backward to the time when he was a boy, and be prepared to make all due allowance for their shortcomings and failures, but on the other hand not forgetting the hard knocks in the line of penalties imposed for like failings at the same critical period in his own life.

Strict discipline should be maintained at any cost, and to this end it is not good for apprentices to join labor unions; neither is it a good thing for the management of a shop to allow labor unions to dictate to them in regard to the number of apprentices there shall be in the shop. The chief cause for flagging interest in an active, ambitious apprentice is the fact that he is often held on one class of work long after he has become thoroughly proficient in that work, and feels that he is losing valuable time. This practice may show greater efficiency for the machine in the course of time, but it is hardly just to the apprentice. His advancement should be as rapid as possible, consistent with his ability. Occasionally this method may necessitate pushing a boy ahead of the one next above him, but a dull boy cannot expect to hold all below him back till he has absorbed sufficient knowledge and practice to warrant a shift. Variety is the spice of life," and so it is with apprentices.

Benefit of Night Schools for Apprentices, Maintained at the Company's Expense. Does It Pay?—I think not. Night school maintained jointly at the expense of the company and apprentices have proved failures in the long run, but accepting the general principle that "where a man's money is there is his heart also," it would, at first seem that these schools should be successful. But we are not dealing with men, we are dealing with boys, who have not yet learned the value of money, and who, as a rule, would sooner have their evenings to themselves to be devoted to pleasure rather than to study, and are ever ready to make the necessary financial sacrifice, so that if they are willing to neglect a night school, maintained partly at their own expense, how can we expect them to do any better with the one which costs them nothing but their own time.

Then again, school work, and especially mechanical drawing by artificial light, will slowly but surely damage the best eyesight, and in a great many cases, not so slowly either. This I can vouch for, to my sorrow. If the company is willing to maintain a night school, why not go a step further and maintain a day school, along the lines adopted by the New York Central and other large roads, which schools are known to be successful. The instruction is not only free, but the boys are paid for attending school, during regular working hours, and cannot get out of it. Such educational systems as have been inaugurated by the large roads, may prove too elaborate for smaller ones, but the same general principles might be followed in modified form to suit conditions, with beneficial results to the company and apprentices alike. The paper entitled "The Apprentice System on the New York Central Lines," by Mr.

C. W. Cross, superintendent of apprentices, read before the Twentieth Annual Convention of the American Master Mechanics' Association, which, with the subsequent discussion, was published in the Report of Proceedings for 1907, covers the whole ground in detail, and to which I would respectfully refer all interested persons.

PAPER BY W. C. GROENING, GRAND RAPIDS, MICH.

The question of how to obtain the right kind of material for apprentices and how to keep them interested is a question that requires a good deal of study of human nature. We have young men serving apprenticeships in a good many shops that will never make machinists, and then again, there are young men serving time that have push enough in them that will make good machinists. When I have an apprentice that stands in the way of one of these apprentices, I make him stand aside. I believe in giving an apprentice a warning and if he does not heed it he should be taken out of the ranks. As a rule, he should have an eighth grade school certificate before entering the employment of the company and be seventeen years of age and have good habits and should be under inspection as to what company he keeps.

I change my apprentices every ninety days to different work. I find it a good plan to keep them interested. A good many shops turn out machinists that have only had either machine or floor experience, and I think that this is an injustice to the apprentice. I think that the General Foremen's Association should go on record this coming convention to have all railroad companies issue a certificate stating how long the apprentice has served in the various branches. I believe if this was suggested to the different Master Mechanics, they certainly would be in favor of it, as it would have a tendency to stop many of the apprentices from leaving the shop before they have served their time. Then again, the railroad company would not have to try the man as to his qualification.

The rules of the Pere Marquette Railroad Company governing apprentices are as follows:

First 6 months in tool room. Rate, 75 cents per day.

Second 6 months, not tappers, bolt cutters and small drill presses. Rate, $1.00 per day.

First 6 months, second year, bolt lathes and other small tools. Rate, $1.25 per day.

Second 6 months, second year, shapers, planers and milling machines. Rate, $1.50 per day.

First 6 months, third year, piston lathe, packing lathe, wheel lathe. Rate, $1.75 per day.

Last 6 months, third year. Erecting floor. Rate, $2.00 per day.

First 6 months, fourth year, rod work, eccentric work, valve setting. Rate, $2.25 per day.

Last 6 months, fourth year, and all of the fifth year, general floor work. Rate, $2.40 per day.

Thus you will see it requires five years, which I think is a very good schedule. I warn all foremen to explain all workings of machinery, grinding of tools, the quickest manner of chucking work. A foreman should at all times feel that he has a special interest in an apprentice and if it is appreciated by the apprentice he will make a good machinist.

In regard to night schools maintained by the railroad companies, I think they are very beneficial. The Pere Marquette Railroad Company gave me permission to start a school at Wyoming, where the shops are located, which is about three miles from the city. We have a dummy that runs every half hour and carries the men to and from the shops. We hold a school in mechanical drafting once a week, the railroad company furnishing everything. We have a good attendance, and I believe the company will benefit by it. We have a class of 53 members, 29 of whom are apprentices. I insist on the apprentices attending this school, and so far it has been beneficial.

A number of Dallas, Tex., financiers, headed by Osee Goodwin, purchased the Texas Southern road at auction for $268,000. The road has been in the hands of a receiver for several months. It is 74 miles long, and it is reported that the new owners propose to extend it into the piney woods of Eastern Texas. The general offices of the road are at Marshall, Tex.

F. R. SPEAR.

There are not many railway officials and railway supply manufacturers who are not acquainted with Mr. F. R. Spear and his straightforward business methods. Mr. Spear has been in the supply business in Chicago since March, 1898, as president of the Spear & Miller Co., offices in the Great Northern building. He is a native of New York state, but

F. R. SPEAR.

moved to Chicago in 1868 when only six years old. His company is manufacturing all kinds of brake shoes and brake shoe equipment. Since last May Mr. Spear, through his popularity at the convention of the International Railway General Foremen's Association, has been president also of the Railway Supply Men for the above railway organization. Mr. Spear belongs to the aggressive class of business men for which the city of Chicago is noted.

MACHINES AND TOOLS IN FRANCE.

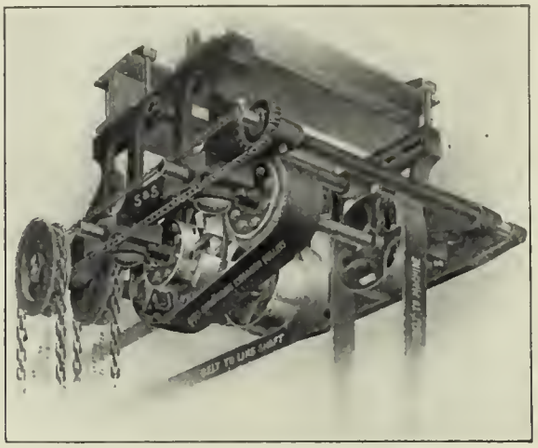
A special agent of the United States government, Mr. G. L. Carden, writing to the Washington, D. C., authorities from France, speaks of a new machine tool plant just established at St. Ouen (Seine), France, and the introduction of American tools in that plant. As to the latter proposition the writer says in part:

"A number of the machine tools which are being installed at St. Ouen are coming direct from America, I am informed, without reference to the local agents. Several tools were pointed out to me which, I was told, were purchased through third parties in America and shipped to France without the knowledge of the makers as to destination. The statement was made that the new shops had saved about 100,000 francs through ignoring agents. This will probably be news to some of our manufacturers, for I am inclined to think that the makers of some of the tools which came in this way are ignorant of the facts. There is one firm of agents in France which is doing its best

to uphold American prices. This firm cannot be induced, I am told, to give even a 2 per cent discount on a thirty-day payment where American machine tools are involved, and the firm has lost business in several instances because it has preferred to stand by its principles."

A VARIABLE SPEED GEAR.

The method of transmitting power to tools and machinery in a shop is something that interests every man connected with the mechanical branch of railroading. It is a factor in a railroad shop that always receives consideration by the foremen. The Rotary File and Machine Company, of 589 Kent Avenue, Brooklyn, N. Y., has called our attention to a mechanical proposition along this line which deserves more than passing notice. It is known as the "S. & S. Variable Speed Gear," for which they make the following claims:



VARIABLE SPEED GEAR.

Ability to transmit any amount of power and vary the speed at any ratio of approximately 4—1 with little more waste than would be found in two ordinary shafts running together in parallel; that the expansion pulleys make possible an efficient short drive; that no expensive special belts are necessary and the pulleys are so arranged as to economize on space and insure all working strains being normal, thereby prolonging the life of the gear; that it is specially adaptable for mounting on girders, wall, ceiling or floor, and has bearings of superior bronze; is designed to withstand abnormal strains, the gear being perfectly adjustable; that its general construction insures long service. The expansion pulley is provided with an encircling spring, which is so constructed as to allow the ends being connected and fitted in grooves in the center of the rim sections, exerting only slight compression when pulley is at a minimum diameter. As pulley is expanded to its greatest diameter, this spring not only overcomes centrifugal action, rendering the pulley noiseless, but lends its greatest support and rigidity where it is most required. The strength of the spring for each size of gear or countershaft is calculated to more than balance the centrifugal action when pulleys are running at their maximum number of revolutions.

AMONG THE SUPPLY FIRMS.

The Lawson & Simmons Co. of Chicago now issue monthly stocklist. The company handles tool and die steel.

The American Blower Co. of Detroit, Mich., issued a 50-page catalogue on A B C blowers for railroad shops.

The Hanna Engineering Works of Chicago has acquired the riveting business of the Quincy-Manchester-Sargent Co. of Plainfield, N. J.

The Westinghouse Electric & Mfg. Co. has been furnishing considerable new equipment to the Transvias Luz y Fuerza Co. of Guadalajara, Mex.

A seamless trolley pole is one of the newest devices put on the market for electric lines. It is manufactured by the R. D. Nuttall Company of Pittsburg, Pa.

The Templeton, Kenly & Co., Ltd., of Chicago has issued a neat booklet on their valuable Simplex car and track jacks. The work is nicely illustrated and full of information. Send for one.

The Independent Pneumatic Tool Company of Chicago informs us that inquiries have been coming in from the railroads, shops, foundries, bridge works, etc., for tools, indicating good business ahead.

MECHANICAL NOTES.

The Chicago & Alton has ordered 1,000 steel cars.

The Chesapeake & Ohio will erect repair shops at St. Albans, W. Va.

It is stated that the Harriman lines will soon order about 6,000 freight cars.

The Wisconsin Central is figuring on about 2,500 freight and passenger cars.

The Central of Georgia has recently been in the market for passenger equipment.

The Missouri, Kansas & Texas is to make shop improvements at Ft. Worth, Tex.

An order for 1,000 freight cars has been placed by the Chicago & Northwestern.

The Baltimore & Ohio is contemplating erecting car repair shops at Lowellville, O.

The Lexington & Interurban has plans for a car barn to be built at Lexington, Ky.

The Kansas City Southern has arranged to rebuild its roundhouse at Texarkana, Tex.

The Atlantic Coast Line will order 1,000 box and refrigerator cars with steel underframes.

The Isthmian Canal Commission has been in the market for 10 locomotives and 50 dump cars.

The Chicago Railways Co. (electric) is having 50 all-steel passenger cars built by the Pressed Steel Car Co.

The Boston & Maine has let the contract for 18 passenger coaches, each to have a capacity of 76 passengers.

The American Car & Foundry Co. has a contract for repairing about 1,000 freight cars for the Frisco System.

The Montreal Locomotive Works has the contract for building three passenger engines for the Michigan Central.

The new shops of the Missouri Pacific at Sedalia, Mo., were opened again July 28, after being closed since February 21.

The Lima Locomotive & Machine Works at Lima, O., has the contract of repairing 40 locomotives for the Wheeling & Lake Erie.

The Santa Fe has let the contract for division shops and roundhouse at Canadian, Tex. The terminal improvements will cost about $150,000.

The Chicago, Lake Shore & Eastern has contracted for a car repair shop at Gary, Ind., to be 300x94 feet. Steel and brick material will be used.

According to press reports, the D., L. & W. has ordered 300 steel hopper cars. The company has ordered considerable passenger equipment also.

The Harlan & Hollingsworth Corporation is to erect a large plant at Wilmington, Del., for the purpose of building steel freight and passenger cars.

The Central Northern Railway of Argentine, S. A., has contracted for building 10 freight and 20 passenger engines with the American Locomotive Co.

It is rumored that the shops of the Cobb Car Company are to be moved from Lake Charles, La., to Texarkana, Tex. Mr. J. B. Cobb of Lake Charles is president.

C. C. Murphy of the Standard Railway Equipment Co. at Chicago has recently returned from a trip around the world, visiting the large commercial centers en route.

The New York Central has contracted for a boilershop addition to be built at Depew, N. Y., which is to be 75x161 feet. A 20-stall roundhouse is to be built also at E. Syracuse, N. Y.

The Santa Fe will finish equipping the new roundhouse and shops at Chanute, Kan. The buildings were about completed before the panic started, when all work of equipment was stopped.

G. L. Carden, special agent for the United States, writes from Paris as follows: "I asked for a frank criticism of American lathes and the reply was that such tools are too light for the new highspeed steels, and that they must be made heavier. The opinion was expressed that the gears on the American lathes, as a rule, are too light and too small in diameter, and that the countershafts are very faulty. In many instances the pulleys, it was declared, are too small and have insufficient driving power. There results in consequence a necessity for keeping a very tight belt."

WASHING OUT AND REFILLING LOCOMOTIVE BOILERS.

A committee composed of Messrs. H. T. Bently, L. H. Turner, S. K. Dickerson, M. E. Wells and H. E. Passmore made the following report at the recent M. M. convention:

The wording of the subject assigned to this committee asked particularly for data pertaining to benefits in the way of reducing defects in fire box sheets, stay-bolts and tubes, but as this is only a small part of the many benefits derived from washing out with hot water, we have felt at liberty to go into the matter more fully in other directions, as the actual data obtainable about reduction in stay-bolt breakages, leaking fire boxes and flues, from the use of hot water, was very meager.

The best system of washing out is one that will do the work properly, with the least change in temperature in boiler, at a minimum expenditure of heat, and in the shortest possible time. To say which system is the best for obtaining these results is not within the province of this committee, but as there are several on the market which will do what is required of them, and each of them, so far as we can find out, is giving satisfaction, no particular make will be mentioned. The fact that good results are obtained by having less trouble from fire box and flue leakage, and a reduction in the number of stay-bolt breakages, and last, but not least, the reduction in terminal delays, would appear to warrant the expense of installation. The more nearly uniform the temperature is kept, the less expansion and contraction takes places, especially in the fire box, which must reduce the vibration in stay-bolts and give them a correspondingly increased life. It has been demonstrated beyond a doubt that when a boiler is kept at a uniform temperature, the least trouble is experienced in the matter of leaking flues and fire boxes.

Under good water and coal conditions, fires are seldom dumped and leaks are almost unknown. Most of this, of course, is due to the water, but most of us have known of engines that have given trouble on account of leaking every day; when placed in the hands of certain engineers, would run day in and day out for a long time and be absolutely dry, the secret of the man's success being in the uniform temperature maintained, by insisting on careful firing, proper handling of dampers, and a scientific use of the injector. If such a condition can be obtained, and we know it is possible, it speaks volumes for maintaining the same temperature as far as possible in fire box and boiler; yet, how many are there of us who, when an engine is coming in from a run, will stand by and see all sorts of things done that, in our thinking moments, we know to be absolutely wrong. We apply cold water through the injector, while no circulation is taking place in boiler, we then blow the steam off by letting it escape to the atmosphere, after which the blow-off cock is opened, and a boilerful of hot water runs down the sewer; and then, as if not satisfied with wasting such a large amount of heat that we will have to replace later on at a cost of probably 800 to 1,000 pounds of coal, we turn on a stream of cold water and go through the washing-out process, so that the fire box is at a temperature of 45 to 50 degrees, and the top of boiler and some of the upper flues are still hot. Then is the time that some boilermakers get their work in; and we are surprised to have someone tell us that a report like a cannon was heard in the fire box and a crack developed in side sheet that has put our engine out of commission for a time, or if we are fortunate enough to miss the cracked side sheet, we fill our boiler up with cold water and reverse the process that has just taken place; a large fire is put in the box and blower applied, so that we have steam on, before the water around mud ring is hot, and often after the engine has gone a short distance on the road we get word from the train dispatcher that the fruits of our abuse has shown itself in a dead locomotive that is blocking traffic. This is not an exaggerated picture, but fortunately it is getting to be understood that this condition can be improved at a reasonable cost.

In taking the question up with a number of superintendents of motive power, who are using various devices having the object of washing out, changing water and raising steam quickly, by the use of hot water, and live steam where necessary, the following information was gathered:

1. That there are four or five different systems in use.
2. They have been in use from one to three years.
3. The cost is from $5,500 to $20,000, depending on size and number of stalls equipped, or at 5 per cent interest would mean an expense of from $275 to $1,000 per year.
4. In the various systems reported, statement is made that they are entirely satisfactory.
5. With this installation they can wash out and get ready for service 20 to 26 engine per 24 hours.
6. The average time to wash out and get an engine ready for service is from 55 1-3 minutes to 4 hours 15 minutes.
7. Average time formerly taken, 3 to 6 hours.
8. Practically no change or improvement made since installed, one user saying that in his system he would suggest a settling well, so that water blown out of boiler might be utilized again after the mud and scale had been deposited.
9. In all cases a very marked reduction was reported in flue leakages and broken stay-bolts, although very little data were available on this subject. At one point it had been possible to reduce the number of boilermakers employed from ten to four, because of the decreased boiler work, since the hot water washing-out system has been installed.
10. Some of the other benefits derived are given as follows: No evidence of steam in roundhouse. Always plenty of water (hot) to refill boilers at 212 degrees. Temperature of water reduces time and fuel necessary to get engine hot. Facility in turning engines, reduction of engine failures, reducing overtime. Reduction of time at terminals where washing out is necessary.

Probably the most important saving that is effected by the hot water changing or wash-out system, is the rapidity with which the work can be done, and thus get engines into service from one to two hours quicker than could possibly be the case with a cold-water system, which necessitates cooling an engine down after the steam has been blown off, before the engine can be washed out, and then directly after bringing the water back to the original temperature that it was when engine came in off the clinker pit; such waste of heat, which means coal, would not be tolerated under any other conditions, but takes place daily at hundreds of roundhouses in this country, without any protest from the people causing this waste.

A simple arrangement used on one of the western roads with very great success, for utilizing steam and water otherwise wasted, is to have wells into which cold water flows from the main, or source of supply, and to heat it, steam and hot water from engines is blown off into well; from this place the water is pumped for washing out and filling boilers. This is probably the cheapest system for furnishing hot water, but it has the objection of using water that has been blown from dirty boilers; but as only a boilerful is taken, it is soon diluted and rendered innocuous by the fresh water injected into it from the tank.

The following actual savings have been reported:

Decreased cost of washing boilers; in 1906 with cold water, for labor alone it cost $1.32 per boiler, whereas, with hot water in 1907, $1.01 was charged against this item, or on the road reporting it, a saving of $2,019.95 per year for labor alone, in washing boilers, was effected on an outlay of $6,000.

Decreased cost of water used; this item may not appear at first sight to amount to much, but where a saving of 7,000 gallons for each boiler washed out can be effected, as has been reported, this at 7 cents per thousand gallons, in Chicago, amounts to 49 cents per boiler washed. It is the opinion of your committee, however, that this estimate of the amount of water saved is high.

Decreased amount of coal used; on one road this is given at 140 pounds per engine, which is probably low; this at $2 per ton would amount to 14 cents. With the three items mentioned we get a saving per engine of: Labor, 31 cents; water, 49 cents; coal, 14 cents; total, 94 cents. The saving of time at the roundhouse is probably, in busy seasons, more of an object than anything else we have mentioned, and as this amounts to cutting the time in half for washing out, it means, assuming that engine is not held for any other work, that with 1,000 engines, each turned two hours quicker than was possible with the cold-water system, you have a saving of 2,000 engine-hours, and as engines generally have to be washed out once a week, or four times a month, in bad-water territory, it amounts to 8,000 engine-hours a month, or 96,000 engine-hours a year; this, if the engines have to be rented at $10 a day, which is a low figure for a large engine, in busy seasons, would cost $40,000, or, putting it another way, working 365 days of 12 hours each, it would require practically 22 additional engines to equal the 96,000 engine-hours a year, which at $15,000 per engine, would mean an expenditure of $330,000.

In conclusion, your committee recommends that boilers be washed out and filled with hot water, and that the savings obtained by doing so will pay a good interest on the necessary investment.

CONSTRUCTION AND IMPROVEMENTS.

The Texas Southern is to be improved and extended under its new ownership.

The Southern Railway has completed a tunnel through Lookout Mountain near Chattanooga.

The Parrall & Durango has about 95 miles of road ready for operation north from Parrall, Mex.

A road is being surveyed by Arthur Maguire of Las Vegas, N. Mex., between Flagstaff, Ariz., and Jerome, 55 miles.

The Kansas City, Mexico & Orient has about 250 miles of road ready for operation in Mexico besides the Chihuahua & Pacific road.

The Derwer, Laramie & Northwestern has plans for extending the road for about 75 miles. The headquarters are at Denver, Colo.

The Edmonton, Yukon & Pacific is to be built west from Edmonton, Alta., for 150 miles, being an extension of the Canadian Northern.

The Salt Lake & Ogden has just been completed between Salt Lake City and Ogden, Utah, and is to be operated by electric power.

The Canadian Pacific has completed a branch from Saugeen Jct., Ont., to Hanover, 28 miles; also a 21-mile branch from Code Jct. to St. Marys.

A new road is being projected between Hot Springs and Meno, Ark., about 60 miles, the promoters being F. S. Treadway, G. E. Carter, Jr., and G. H. Gilbert of New York.

During last month tenders were received by the secretary of the Transcontinental R. R. Commission of Canada for the construction of about 461 miles of the Grand Trunk Pacific.

The Lake Charles & Northern, a Southern Pacific branch, is about completed between Lake Charles, La., and De Ridder. It is to be open for traffic about September 15.

A new road is projected between Brownsville and San Antonio, Tex., about 375 miles, a portion of which has been surveyed. Mr. T. J. Van Zandt of Paris, Tex., and others, are interested.

The Atlanta, Birmingham & Atlantic extension to Birmingham, Ala., has been almost completed to Pelham, Ala., where connections are to be made with the L. & N., affording entrance into Birmingham.

The Canadian government has decided to undertake the reconstruction of the steel bridge at Quebec, and it is understood that it is to assume the loss sustained by the company that first undertook the work.

R. Macdonald, president of the Dominion Eng. Co. of Montreal, is interested in the construction work of the Central Railway, which is proposed to be built between Montreal and Midland on Georgian Bay.

After testing concrete ties for about a year the Burlington has decided to return to the wooden cross-ties, and has decided to erect a treating plant for treating all cross-ties and bridge timbers, which will cost about $270,000.

The following orders have been placed lately for steel rails: Boston & Maine, 7,000 tons; National Lines of Mexico, 20,000 tons; B. & O., 14,000 tons; Chesapeake & Ohio, 10,000 tons; Cananea, Yaqui River & Pacific, 28,000 tons.

The Pittsburg, Binghamton & Eastern is being built from Pittsburg, Pa., to Binghamton, N. Y., 310 miles. A portion of the work being contracted for. W. J. Oliver of Knoxville, Tenn., has a portion of the contracts.

The Arizona & California road, a branch of the Santa Fe in Arizona, has completed a million-dollar steel bridge over the Colorado River at Parker, Ariz. The road is about completed from Wickenburg, Ariz., to the river at Parker.

R. W. Day, chief engineer of the Montana division of the C., M. & St. P., states that during the month of May construction work on the tunnel through the Bitter Root range was advanced 538 feet. The tunnel is now completed for about 2,500 feet.

The Turkish government has authorized the Bagdad Railway Company to proceed with the building of the Eregli-Elif extension. There will be four sections, covering in all 525 miles. The Bagdad railway will therefore pass near Aleppo. As Aleppo is already connected by rail with Damascus, it will be possible for pilgrims to go to Mekka by the all-rail route, Haidar-Pacha-Konia-Aleppo-Damascus.

OPPORTUNITIES FOR FOREIGN TRADE.

The following information has been furnished the Railway Journal from the Bureau of Manufacturers at Washington, from which further information may be secured:

Tenders will be received until October 15, 1908, by the Italian ministry of marine, Rome, Italy, for the construction of a new dry dock and for various alterations and extensions to the government dockyard at Venice. Copy of the program and plans may be obtained by addressing the ministry at the above address.

An American consul in a city of eastern Europe reports that there is a market in his district for hardware, windmills, pumps, aermotors, etc., and forwards the name of a firm that desires to communicate with American manufacturers of the foregoing goods with a view to securing the agency for the same in that region.

A report has been received from an American consul in a European city in which he states that there appears to be a market in his district for American machine tools of various kinds. He also forwards with the report the names of two local reputable business houses that would be willing to take the agency of American manufacturers of the foregoing class of goods desiring to exploit that region.

An American consul in a city of Latin-America reports that a construction firm in his district would be glad to receive quotations from builders of steel lighters. This company is about to purchase a steel lighter of 100 tons capacity, destined for the handling of rock and heavy material. The lighter must be solidly constructed, and all necessary equipment, such as anchors, etc., should be included in the quotations furnished. Illustrations, diagrams, terms and conditions of sale, and full particulars with prices c. i. f. certain port should be sent to the company in question. Correspondence should be conducted in Spanish.

An American consul in South Africa reports that the government railways in his district invite bids for the supply of 125 high-sided eight-wheeled bogie wagons, and American manufacturers should find it to their interest to attempt to secure the contract. The consul has forwarded plans and specifications referring to a previous order for fifty wagons, but they are identical with the requirements for the 125 wagons now wanted, and if 125 is substituted for the figure fifty in the specifications, the particulars will be found correct. These specifications and the name of the official to whom bids should be sent can be obtained from the Bureau of Manufacturers.

An American consul in a South American country reports that there is a movement on foot to form another telephone company in that region, and the promoter of the new company wishes to communicate with manufacturers in the United States regarding a complete installation. The central station will contain 600 lines, and ten stations will be needed containing from twenty to fifty lines. An automatic switchboard and about 800 house installations will also be needed. Full information is requested as to the cost of sending a superintendent of construction to erect the plant and engineer the system. Further particulars can be obtained from the promoter, and correspondence can be conducted in English.

An American consul in South Africa has forwarded copies of the specifications and terms for tenders for the rails and sleepers needed for the construction of a proposed railway in that region. The consul states that if American manufacturers give this matter their prompt attention, they may be able to get some of the business, and incloses the name of a business man with whom he suggests that correspondence be taken up with a view of securing the same.

A report has been received from an American consul in a country of eastern Europe, in which he states that a firm of commission merchants doing a large business in his district would like to represent American manufacturers of the following classes of goods: Leather, hardware, saws, cork, wood alcohol, wax, typewriters, turpentine, novelties, printing machines, steel, smoked fish, etc. The firm is willing to furnish satisfactory references.

An American consular officer in the Far East reports that a franchise has been granted for the construction of an electric street railway in his district. Should the parties receiving the franchise fail to construct the railway other tenders will be received. The port in question is the chief shipping point in that region, and extensive improvements are being made to the harbor and throughout the city. A modern waterworks system and electric-lighting system are being installed, and the parties having these in charge are chiefly interested in the proposed electric street railway.

A report has been received from an American consular officer in Latin-America stating that a local business man desires to receive catalogues and price lists of machinery for the manufacture of cement. He contemplates the establishment of an experimental plant, and requires a light-weight grinding machine of small capacity that can be used both as a pugging and a dry grinding mill. He is also interested in the manufacture of matches and clay products, but owing to the difficulties of transportation it is not practicable to bring heavy machinery into that region.

An American consular officer in a European country reports that the mayor of one of the principal cities in his district has published in the local papers an offer of a concession for the construction and exploitation of a tramway system for the city. Bids will be received up to October 14, 1908, and must be accompanied by a surety of $1,000. For further direct information, correspondence should be addressed in French or German to the official, whose name is given in the report.

Consul-General W. H. Michael, of Calcutta, India, reports that a plan for the enlargement and improvement of the Calcutta wharf and port for a distance of six miles is before the port commissioners with a probability of being adopted. For the purpose of carrying out all the improvements contemplated, the river-side portion of the mint premises have to be acquired, and a strip of land along the river frontage will be reclaimed comprising an area of about ten acres of land, estimated to be worth $1,000,000. A new road seventy feet wide will be constructed along the edge of the river bank; the lines of the Port Trust railway will be entirely remodeled, and large transit sheds for accommodating the traffic will be erected. The whole scheme comprises the following provisions: (1) Twelve commodious pontoon landing stages. (2) Seventeen two-storied warehouses with a total floor area of 1,217,150 square feet. (3) The length of the depot will be about 5,000 feet, the greatest breadth about 520 feet, and the total area comprised in the station and roads about forty-four and one-half acres. (4) Building sites with a frontage on Strand Road of 3,000 linear feet and six acres superficial area. These improvements when completed will afford splendid facilities for handling the rapidly increasing trade.

It was in a federal court in the state of Montana that the first sentences were passed for the violation of the Hepburn anti-pass law. An employe of the Great Northern Railroad, at Havre, Mont., secured a pass over the road from that point to St. Paul in the name of his wife, but gave or sold it to another lady to use. The transaction reached the federal authorities, which resulted in the arrest and conviction of both parties. The employe was fined $200 and the lady who received the pass from him, was fined $100. Loaning and giving away railroad passes are old-time practices, but since the passage of the Hepburn law such transactions cannot be allowed, particularly for interstate travel, as was the above case. The law states positively who is entitled to free transportation for interstate trips, and if given to anyone else, the donor and the recipient are both liable to punishment. It is also an offense for any person not entitled to it, to even ask for free interstate transportation.

In a recent issue the Milwaukee Sentinel published an editorial on "Courtesy on the Rail," in which the following paragraph is taken:

By instructing its employes to be courteous to passengers, the Lackawanna road has established a precedent that must be followed by other companies, to the great joy and satisfaction of the traveling public. The Lackawanna has embodied the golden rule in an address to its men, the opening paragraph of which runs as follows: "The principle that underlies courteous treatment of others is simply that of doing unto others as you would they should do unto you."

The employes are directed to answer questions as fully and clearly as possible, "and without any suggestion of superiority born of a greater knowledge." Attention is called to the fact that words are only one means of expression, and that manner is quite as important. "Therefore, remember that a kindly and gracious manner is not only the sign and mark of a self-respecting man, but it is to your words what oil is to machinery in making them effective to their purpose," say the instructions. Employes are admonished to be as civil to the ill-clad stranger as to the mighty railway magnate. With the characteristic commercial spirit the lecture concludes with the statement that "courtesy pays." "It pays in the friends it makes you personally and as a representative of the company," says the road. "It pays in minimizing the friction of your life as well as that between the company and its patrons. It pays in raising your standard with the company. It pays in the personal satisfaction resulting from having done the right and kindly thing by your neighbor."

The compliment paid the Delaware, Lackawanna & Western in the foregoing is deserved and well put, but is worded in such a way as to reflect on other roads. The D., L. & W. is not the only road by any means that has educated its employes to be courteous to patrons, hence is not exactly establishing a precedent—it is doing just what many other leading roads have done in the past and are doing now. As a general thing railway employes are among the most courteous class of people of those doing business with the public.

NOT GOOD FOR ENGINE FUEL.

The director of the U. S. Geological Survey has favored the Railway Journal with the announcement a forthcoming bulletin of the United States Geological Survey will contain an exhaustive report of the tests conducted at the Fuel Testing Plant in St. Louis, Mo., and Norfolk, Va., on the gas producer. An interesting feature of the report will be the behavior of a certain bone coal from West Virginia in the producer. This fuel was considered of little or no value for steam boiler work, yet showed considerable usefulness in the gas producer, developing at the engine a brake horse-power per hour for 1.65 lbs. of coal.

This coal was delivered on the producer platform in lump form up to 8 or 10 inches in size. The coal crusher not being available at the time necessitated breaking the large lumps with a hammer. The character of the fuel was rather peculiar; some of the lumps consisted almost entirely of what appeared to be a high-grade bituminous coal, others seemed to be nothing more or less than rock, heavy, hard, and when hit in the dark with a hammer numerous sparks could be readily seen. And again there were many lumps of this rock-like substance to which adhered much good coal. In the producer all of these lumps, when not too large, would burn entirely through. The fuel had no tendency to clinker or choke and worked exceedingly well, needing scarcely any poking. It contained a very high percentage of ash, about 45 per cent, thus causing the ash bed to increase in thickness very rapidly, and throughout the test this fact was not properly appreciated, consequently much of the time during the test the ash bed was too high for best results. The fact that the coal had to be broken by hand and that it was unusually hard and rock-like had a tendency to allow lumps of coal much too large to be charged into the producer. These large lumps, very high in ash, did not burn entirely through. As soon as the burning was well started, a layer of ash formed around the lump, interfering with the combustion of the remaining portion, and before it had time to burn it had passed out with the ashes unconsumed. Because of the general appearance of the coal but little was expected of it and the test was started with only partial load. After several hours' run, however, the results warranted full load on the engine. After 30 hours of full load the accumulation of ash in the producer caused a little trouble; the gas went down in heat value and it was necessary to reduce the load to about 9 per cent of full load. After much grinding down of the ash bed and special care in breaking up the lumpy coal, the gas began to increase in heat value, and at the end of the test the producer was again in shape to maintain full load at the engine. The calculations for the test are based on the 50 hours taken from the time full load was carried by the engine, and for this period the gas averaged 144 B. T. U. per cubic foot, with an average load of 97 per cent of full load.

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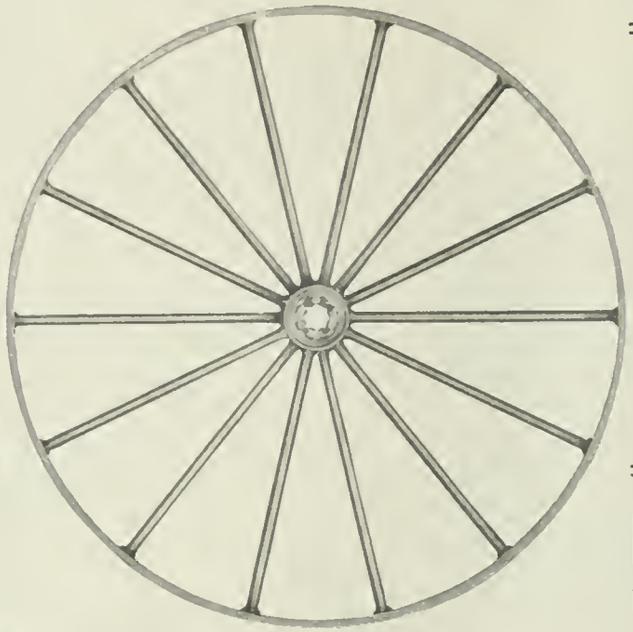

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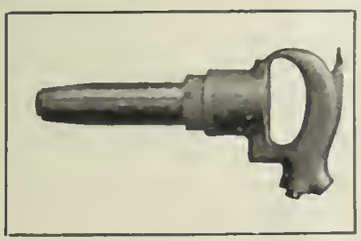

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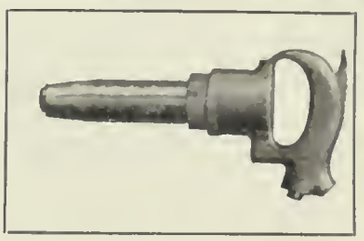

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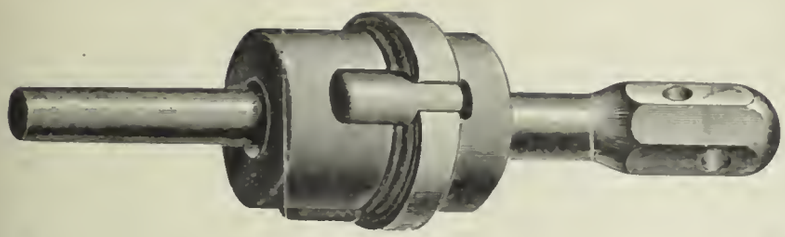

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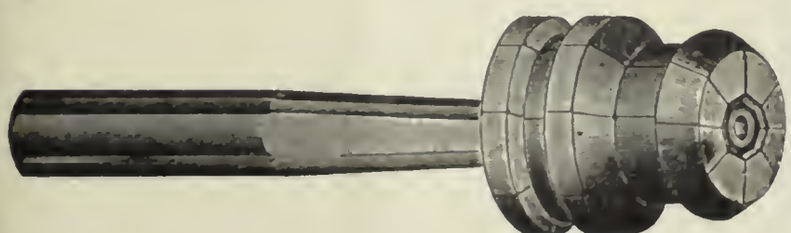

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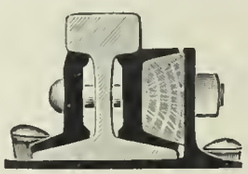

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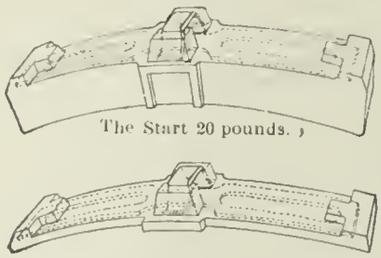

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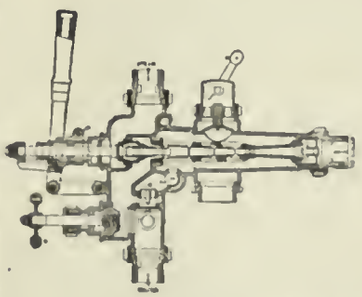

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Official Organ of the National Association of Freight Traffic Agents and the International Railroad Master Blacksmiths' Association

Address all communications to
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'Phone, Harrison 1006.

Entered at Second-Class Matter October 22, 1906, at the Post Office at Chicago, Illinois, under Act of March 3, 1879.

W. E. FAITHORN . . . . . Business Manager
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SUBSCRIPTION PRICE, One Dollar per Year, Ten Cents per Copy

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WHERE CRITICISM DOES NOT FIT.

About a year ago the roads were being severely criticized by those unfamiliar with conditions, because more equipment was not ready for the public use, because better terminal facilities had not been provided, and for various other reasons the roads were accused of being behind in the progress of rapidly increasing business. The management of the roads were doing their best to meet the emergency in handling traffic, and when the panic came on about a year ago conditions reversed themselves. The roads were then more than supplied with equipment and terminal facilities. A few weeks ago a large manufacturer of Chicago, Mr. R. T. Crane, published in the Valve World a criticism of railway management which reads practically the reverse of the criticisms given out prior to the panic of last fall. Among the unjust assertions made by Mr. Crane is the following:

"The railroad boomer seems to have acted on the assumption that the railroads must have hundreds of millions of dollars every year that had to be spent on railroad building and equipment. Dazzled by the glowing pictures painted by the boomer, the railroad corporations have anticipated imaginary future requirements, and have gone ahead extending old lines, projecting and laying out new ones, without any apparent thought as to whether the present or prospective transportation needs of the country warrant the additions."

Would it not be proper to ask Mr. Crane what would have developed this country and its business the past twenty years had it not been for the railroad builder, or "boomer" as he has styled him. The investors in railroad properties are generally about as conservative as the man who goes into a new factory enterprise, and his results are just as beneficial to the public. A less number of railroads have ceased operation than there are factories closed, and it is the railroad that opens up opportunities for new factories and encourages the producer to go into a new field to develop and increase business.

FAVORS TRAFFIC ASSOCIATIONS.

In his address before the American Association of Freight Traffic Officials, Mr. E. E. Clark, of the Interstate Commerce Commission, expressed himself as being in favor of railroads maintaining traffic associations, provided their articles of incorporation and their rules are subject to the approval of a federal tribunal and are made public. He is also in favor of the Commission having authority to suspend a proposed increase in rates till it can determine its reasonableness. In regard to the violations of the interstate commerce law, Mr. Clark paid his compliments to the railroads in the following words, as quoted by the daily press: "I doubt if the whole history of law-making in this country discloses such a record of ignoring, evading and defying law as has marked the course of the interstate commerce law. Its purpose has been defeated through technicalities. But it must not be assumed that the effort toward government regulation of interstate commerce has been, is, or will be a failure, or that it will be abandoned in despair. There will be no vindictiveness, no playing to the galleries and no partiality in administering the law as laid down by Congress, but there will be a firm purpose and an earnest effort to enforce its full intent."

RAILWAY JOURNAL HONORED.

The RAILWAY JOURNAL management is in receipt of the following letter, which we reproduce with pleasure, feeling honored with the message it bears:

NATIONAL ASSOCIATION OF FREIGHT TRAFFIC AGENTS.
Cincinnati, O., Sept. 5, 1908.

Editor RAILWAY JOURNAL,
Chicago, Ill.

Dear Sir: At a meeting of the executive officers of the above association, held at Cedar Point, O., August 27, it was decided to make the RAILWAY JOURNAL the official organ of our association, and I will so notify the various divisions comprising our organization. We feel the circulation your valuable paper has among the railroad fraternity, as well as the general public, would give us deserving publicity from time to time, and I shall take pleasure in sending you such items of interest as may take place among our members and in our divisions, and trust you will use same to advantage.

Thanking you, I am,
Yours very truly,
GEO. B. HILD, Secretary.

The above is self-explanatory and the RAILWAY JOURNAL cannot refrain from expressing its gratitude for this special tribute paid it by one of the strongest and most important railway traffic associations in this country. The National Association of Freight Traffic Agents has among its officers and members many of the brightest railway freight officials in America, and its usefulness in a commercial way is too well known to need further comment at this time. It has the support and encouragement of the railway managements who appreciate its important mission in the field of freight traffic.

GOING AFTER DETAILS.

The system of accounting required by the Interstate Commerce Commission and the detail reports it requests from the roads indicates that the Commission proposes to know everything of importance, and some things that are not so important, in the management of the roads. It appears that the Commission will soon be burdened with data that will be a handicap to its service for the public good. The annual reports which the roads are required to make will be so voluminous that if given to the public, none but a statistician will care to read them. It is true that the Commission should be armed with facts that pertain to general conditions of railroad operation, but to wade through little details may prove discouraging and embarrassing to the Commission in its efforts to get the real meat of the situation. Here are some of the most important questions which the railway companies are requested to fill out and report to the Commission:

Names of the ten largest holders of voting securities, whether these are trustees, and for whom.

Names of roads controlled, through stock ownership or otherwise, and conditions of control.

Under what government is the company organized?

Names and mileage of all roads whose operations are included in income account.

Details of outside operations.

Securities issued during the year, for what purpose, and cash realized therefor.

Railroad and other stocks and bonds owned, either directly or indirectly.

All important changes that have taken place during the year, extensions, leases, consolidations, or reorganizations.

Employes and their salaries, from general officers down.

Tonnage and average rates per mile.

All accidents and their results.

In addition to the blank forms elaborate instructions are furnished for the filling in of each schedule. Besides the above these call for the usual information regarding earnings, expenses, capitalization, etc.

BANKERS AND UNIFORM BILL OF LADING.

For the past few years the members of the American Bankers' Association have been contending for a uniform bill of lading. A committee was appointed three years ago by the association, whose duty it was to bring about such a bill. According to a recent statement issued, the American Bankers' Association is highly pleased with the report of the Interstate Commerce Commission made June 27 last, recommending a uniform bill of lading in two forms—one for "straight" and one for "order" shipments. The views of that committee of the association are set forth in a circular letter from its chairman, Mr. Lewis E. Pierson, president of the Irving National Exchange Bank, in which the following is a part:

Of course, all that is now accomplished relates solely to the forms of the bill; there yet remains the all-important work of procuring legislation by Congress and by the respective states regulating matters, vital to security, not covered by the bill itself. Bankers, therefore, must not regard the movement which has been inaugurated under the auspices of their committee on bills of lading for a better bill and for better laws governing it, as ended by the recommendation of these forms, but in reality as only just begun. It is a movement in which all must continue to unite until the necessary ends, sought by legislation, are obtained.

It is further to be noted that the commission can only recommend and have no power to enforce the use of these bills by the carriers of the country; but the carriers represented in eastern classification territory, having been parties to the proceeding, and having, as already said, assented to these forms, will doubtless put them into use, and it may reasonably be expected that such use, backed by the recommendation of the commission, will lead carriers all over the country to adopt them. The points urged by the bankers' committee and now adopted in the recommended form are, in brief, these:

1. Two separate forms of bills of lading, on different colored paper, one for straight and one for order shipments.
2. The prominently printing of the words "order of" before the name of the consignee of order bills.
3. The omission of the words "not negotiable" from order bills and the printing of such words on straight bills.
4. The amendment of the alteration clause so that a fraudulently altered bill shall be good for its original tenor and not destroyed completely.
5. The addition, at the end of section 3 of the conditions (which provide that the carrier, liable for loss, shall have the benefit of any insurance), of the words "so far as this shall not avoid the policies or contracts of insurance."

The result, as already said, is gratifying in the extreme from the bankers' standpoint. There is reasonable prospect, as already said, that these forms will be adopted as a standard by railroads all over the country. Instead of the numerous forms of bills which are now used, with conflicting provisions and conditions, such provisions and conditions will in the future, it is hoped and expected, be uniform for straight and for order shipments. The separate forms will enable the banker at a glance to know what to handle and what to let alone. The cause of frequent loss, due to the change of straight to order bills by the fraudulent writing of the words "order of" on straight bills and negotiation of the fraudulent document, will be removed. This order bill will be an order bill and will not have the contradictory words "not negotiable" on it, to render its legal effect uncertain. A fraudulently altered bill will be good for its original tenor.

FACTS FOR THE SHIPPERS.

The question of increasing freight rates is one that interests practically every business man and farmer in this country, and will as long as they are interested in the commerce of this country. To educate the shipper to the importance or necessity of increasing freight rates is not an easy one. Facts are not just what they are looking for, but there are many who will listen to reason. Statistics make dry arguments, but comparisons often set readers to thinking and eventually convince those who reason logically.

One of the most convincing array of facts ever set

forth to justify increase of rates has just been made public by Mr. Yoakum of the Rock Island-Frisco System, in an interview in the New York Herald, in which he explains to the shippers of this country how much more they would have to pay if the railroads charged on the same basis of charges in Europe. If the shipper will ponder over the figures given by Mr. Yoakum he will soon come to the conclusion that an increase of rates in this country is not unjust, and will appreciate the advantages afforded the shippers of this country over those of Europe. Quoting Mr. Yoakum in the Herald:

CHARGES COMPARED.

"One dollar pays the charge for moving one ton of average freight in the different countries the distances shown:

Great Britain	43 miles
France	66 miles
Germany	75 miles
United States	132 miles

"The freight revenue of United States railways, according to interstate commerce statistics for the year 1907, was $1,826,000,000. If the United States for that period had paid the English rate for freight the cost would have been $4,000,000,000 more than the people of this country paid at the present rate. At the English freight rate the total freight bill in the United States would have been $5,713,000,000, instead of $1,826,000 as paid by the United States freight shippers.

"It it not difficult to show how this $4,000,000,000 difference occurs."

Here Mr. Yoakum turned to a wall map of England, and, indicating Manchester and London, said:

"The charge to move a ton of grain between these points, a distance of 227 miles, is $4.21."

Then turning to a map of the United States and pointing to St. Louis, he said:

"It costs only $1.40 to move a ton of grain from St. Louis to Chicago, a distance of 280 miles, and from St. Louis to New York, 1,066 miles, a ton of grain is moved for $4, or 21 cents less than the English charge from Manchester to London, less than one-quarter the distance.

"If the 1,675,000 railway employes of this country had been paid the English wages the total compensation for the year would have been $508,000,000 instead of $1,075,000,000 as it was.

"The average wage paid per annum to the railroad employes in the various countries is as follows:

In France	$256
In Great Britain	303
In Germany	338
In the United States	642

"Classified in the different departments of railroading:

Firemen in Great Britain are paid	$ 300
Firemen in the United States are paid	763
Conductors in Great Britain are paid	315
Conductors in the United States are paid	1,155
Engine drivers in Great Britain are paid	487
Engine drivers in the United States are paid	1,359

"The compensation of the section man in the United States is $423 per annum, which is $108 more than conductors are paid in Great Britain and $123 more than locomotive firemen are paid in that country.

"Superior efficiency of American railroads is generally known. The cheapness of the American service by comparison is plainly indicated by the instances cited and the figures I have quoted. The wage of workers is strikingly in our favor. But the satisfactory thing to me is that this better service at lower cost is accomplished after paying double the wages to employes. It certainly can cause no one to think less of American railway management.

"The railroads of this country and their management are being closely studied and analyzed by the American people. The more they study it and come to understand the transportation question the more fully are they impressed with the fact that railroads should not be harassed to a point of retarding business, growth and development of the country and the employment of men.

REBATING EVIL STOPPED.

"There is no just complaint about regulations to prevent discrimination and injustice to the public. Rebating has been made a crime and stopped. All are better for it. I do not contend that no mistakes have been made in the railroad affairs of this country, but, recognizing and admitting these faults, it certainly cannot cause anyone to think less of railway management and the efficiency of their officers and employes. Would it not be in the interest of every business in this country to let it be known that all our regulative laws are going to be rigidly enforced, that future legislation will not be enacted without due and proper consideration to properly safeguard all interests?"

RAILWAY OFFICIALS AND EMPLOYES ORGANIZE.

On September 14 there was a meeting held in Chicago which resulted in the formation of a new and splendid organization, known as the American Railroad Employes' and Investors' Association. It is composed of railway officials and employes. The officials of the leading roads and of the leading brotherhoods were identified with the founding of the organization and participated in the initial meeting.

Mr. P. H. Morrissey, Grand Master of the Brotherhood of Railroad Trainmen, said that the "purpose of the American Railroad Employes' and Investors' Association shall be to use all lawful methods to cultivate and maintain between its members such a spirit of mutual interest and such concern on the part of all for the welfare and prosperity of American railroads as will best promote their successful and profitable operation for the benefit alike of their employes, investors and the public; to encourage by every proper method, cordial and friendly feelings on the part of the public toward American railroads and their business; to publicly provide means and methods for obtaining consideration and hearing from all legislative bodies and commissions empowered to enact laws, rules and regulations affecting the conduct and operation of railroads; to do whatever lawful things may be necessary in order to secure a fair return alike to capital and to labor interested in American railroads with due regard at all times to efficient service, fair treatment and safety to the public. This association shall at no time be used for partisan political purposes, nor shall it take any part in any controversy, if any, which may arise between railroad employes and road officials."

The policy and scope of this organization are good ones and are apparently along the same line suggested and endorsed by the National Association of Freight Traffic Agents at their convention in June of 1907 and again in 1908. At the recent convention Mr. W. J. Byrth, now president of the latter organization, in his address said, among other things, which is along this line of co-operative work:

> Let us not content ourselves merely with soliciting a shipment; let us endeavor to convince the shipper that his interests and those of the railroad are identical, and mutual confidence will beget square treatment, the statements of the demagogue to the contrary notwithstanding. I firmly believe that the work we have undertaken can be accomplished in this way, but if the demagogue, the crossroads politician and others in higher places, persist in their attacks on the interests we represent for political effect, then I am in favor of organizing along other lines. It has been stated that one-fourth of the population of the United States is dependent upon transportation companies for their livelihood. I am told that there are eighty thousand railroad employes in the state of Ohio; effectively organized, they could demand just treatment, and show the unscrupulous politician, whether he be a member of a state legislature, a member of congress, or president of the United States, that the corporations from which they get a living for themselves and families are entitled to a square deal, and *must have it*

The following temporary officers were chosen by the American Railroad Employes and Investors Association: A. J. Earling as president and P. H. Morrissey as secretary. The following were elected as an executive committee to further the work of the organization: For the railroads—A. J. Earling (C., M. & St. P.), E. P. Ripley (A., T. & S. F.), George B. Harris (C., B. & Q.), and B. L. Winchell (C., R. I. & P.). For the employes—P. H. Morrissey, Warren S. Stone, E. B. Garretson and John J. Hanrahan.

CHICAGO & NORTHWESTERN STATION.

Announcement has been made by the Chicago & Northwestern Railway that plans have been completed for its new passenger station at Chicago. These drawings indicate that the new terminal will be one of the finest architectural features of the city—a splendid structure of classic design, the essential feature of which is a great colonnaded entrance or portico of lofty proportions, monumental in type, that towers to a height of 120 feet above Madison street. There are six other public entrances to the building, and the stairways are so ample that if placed side by side they would form steps 100 feet broad.

The plans call for an elevated terminal, reached by two elevated approaches of four tracks each, and a train shed 840 feet long and 320 feet wide that will contain sixteen tracks, each with a capacity of fifteen cars. The approaches alone to this structure embrace some thirty acres of ground, fifteen acres for the north and an equal amount for the west approach. This is entirely separate, and in addition to the present main lines. Between Kinzie street and Madison street and Clinton and Canal streets some thirteen acres will be occupied by the tracks and station. It is difficult to comprehend the magnitude of the building: For instance, the area of the basement is over two acres; the street floor of the station building is one and three-quarter acres; the train shed six acres. There will be practically ten acres of floor space devoted to public use. This terminal will occupy practically four entire city blocks, bounded by Madison street on the south, Kinzie street on the north, Clinton street on the west and Canal street on the east, passing over Washington and Randolph streets by means of brilliantly lighted subways.

CHICAGO & NORTH-WESTERN'S PROPOSED PASSENGER STATION AT CHICAGO

In the passenger station proper there are, first, the street level; second, the train shed level, or main floor; and above this, a third floor, containing several features such as rest rooms and emergency rooms for the care of invalids. On the street level, the essential feature of the whole floor is the great lobby, or concourse, where all the business of preparing for travel is conducted. The lofty vestibule or portico which forms the Madison street entrance, opens directly into this public concourse, which has an area of 100 feet by 250 feet. Surrounding it are ticket offices, cab offices, news stands, baggage checking rooms, telegraph offices, telephone booths, an automobile office, taxicab offices, and a well-stocked shop or store in which may be purchased practically everything that a traveler is likely to be in need of, from a handbag or package of shoe polish to the usual fruits, candies and materials for luncheons.

A SUBURBAN CONCOURSE.

A splendid suburban concourse is provided in the center of the station on the street level floor, extending through from Canal to Clinton streets, through which suburban passengers inbound and outbound can conveniently reach the northern part of town via Randolph or Washington streets. Those whose destination is further south can use the Madison street entrance. The cab and automobile stands are covered and adjoin the suburban concourse, which is also provided with ticket offices and other conveniences.

Arrangements have been made for ample space for immigrants. In a clean and well-lighted apartment with tiled floors and enameled tile walls, is a waiting room which, with its accessories, surpasses anything that has heretofore been provided for that class of travel. There are bath rooms, toilet rooms, and a dining room, where for a small sum the immigrant can get excellent service, luncheon, kitchen, laundry tubs, and every conceivable means of adding to the comfort and cleanliness of the immigrant.

The main waiting room, which is to be on the second floor, on a level with the train shed, is to be marble lined, 100 by 200 feet, and eighty feet high, with a barrel-vaulted ceiling. The walls will be treated with a series of columns or colonades, corresponding with the main entrance. The lighting arrangements will be of the most brilliant character. On the same floor with the main waiting room will be the great dining room, which is to be handsomely decorated.

The structure is to cross Washington street over a subway, which of itself is a work of architectural beauty. The white enameled tile with which the subway is lined, and the brilliant arrangements made for its electric lighting, make it one of the most attractive feature of the structure. This subway at Washington street has been provided with great portals of granite, the arches of which are treated in the monumental style of architecture. The street will be widened at this point to 120 feet instead of the street width of eighty feet. This provides for the future widening of the street, and the arched walls of the subway will form a handsome passageway.

THE TRAIN SHED.

One of the most important features is the treatment of the train shed. This structure will be 840 feet long, extending over three city squares, but it will not have the usual long black expanse of sooty roof that offends the eye. The facade running north and south along Canal street and Clinton street will be a finished and artistic curtain wall of brick and granite, forty-eight feet high, and including its length the fine portal of the Washington street subway. The train shed roof will not be visible. The sixteen long tracks which will occupy the shed, will be covered by what is known as the "Bush roof," in which the graceful curve of the roof over each pair of tracks is broken by a concrete slot or duct, running the length of each track and so placed that the locomotive funnels will discharge through it into the open air. The roofs will be of concrete, covered with water proofing material. Skylights will be of wire glass and sufficient in extent to light every part of the train shed. In this, as in track elevation and various other transportation improvements, the train shed concourse has also received in the architect's plans a treatment that is far superior to that usually seen. Instead of being an open space, fenced off from the train shed proper by wire or open ironwork, it is simply a great

waiting room, completely enclosed in glass and metal, with a glass and metal roof, making an airy, bright, clean room, 318 feet by sixty feet. At either end of the concourse great stairways communicate directly with the street, and cab stands are reached without going through the station. There is also a stairway to the street floor of the station proper.

THE ARCHITECTURAL APPEARANCE.

The Chicago & Northwestern's new passenger station is to be one of the handsomest buildings in Chicago from an architectural standpoint. The architects who have had charge of the design have visited and studied the world's principal railway terminals at London, Paris, Vienna, Edinburgh, etc., and it is the intention of President Hughitt, of the Chicago & Northwestern, to give to Chicago one of the finest railway stations in the world. It is claimed that this station will, with one exception, be the largest railway terminal in the United States, and will involve an estimated expenditure of $20,000,000. Besides the special features mentioned, this terminal will also have its own heating, lighting and ventilating plant, also special apartments on the third floor for emergency hospital rooms and private rooms for aldies, all of which will be reached by elevator service.

IMPORTANCE OF THE STATION AGENT.

At a recent meeting of the station agents of a divison on the Illinois Central, Mr. J. M. Daly, car accountant of the road, made a friendly talk in which he paid the railway station agent a deserved compliment. He also made some suggestions which can be appreciated by the station agent at any point. As the average agent is always anxious to learn something for the good of the company's service, he has progressed as a factor in his community, as well as with his company. Mr. Daly said among other things:

The position of agent is a very important one. You gentlemen handle the entire business of the railroads. Every dollar that we earn is handled through your office. In the state of Illinois we have 417 industrial corporations that employ expert traffic managers to look after their railroad service. Most of these men formerly were employed by railroads. These gentlemen make a specialty of rates and service on from one to three commodities and devote their entire efforts to obtaining the best possible service at the lowest price. These industries keep a detailed record of the movement and service afforded each individual shipment, the small shipper or receiver of freight is equally anxious for prompt and efficient service and must receive the same attention. It is true that frequently unreasonable demands and requests are made on you. * * * In winter the public moves its traffic by team during daylight hours, 8 a. m. to 4 p. m.—eight hours out of 24—and demands increased free demurrage time, whereas the shipper who is obliged to wait for cars (that are detained by the consignee) demands damages in the shape of reciprocal demurrage. In meeting these conditions, it is well to explain and make known our position. Shippers demand that we furnish our cars to load for distant points on foreign roads where we lose possession of them, the foreign roads holding and using our cars locally as long as desired. The average shipper and consignee does not understand and consequently cannot appreciate the difficulties we labor under, and the company must depend upon you, gentlemen, to make it known to them, not with a view of finding fault, but in the same friendly manner that shippers make known their conditions to us.

If a patron asks you what train connections he can make with other roads, figure it out for him, and, if necessary, use the wire to get it for him. If a shipper asks you why it is that the rate on his hay or his live stock is 25 cents per hundred, whereas the rate to the coal or lumber dealer is 5 cents or 10 cents between the same points, reason it out with him; show him where coal loads 50 tons to the car and live stock only 10 tons; further, that live stock is moved in fast trains hauling less than 20 per cent as many revenue tons as coal trains. The public are not informed on such matters, and if you are patient and careful in explaining, you make a friend to yourself as well as to the company. I have attended quite a number of investigations made by the different state legislatures, the state and Federal commissions, and firmly believe these gentlemen aim to do what is just and fair, but they receive information on but one side of the case—that of the public—and their opinions are formed accordingly. Bear in mind at all times that a complaint from a patron shipping one car a year is as important as a complaint from a shipper giving us a hundred cars, and that the small shipper has an equal influence in any organization of which he is a member. If you, by giving him facts, convince him that we are doing our best to protect his interests, you will find that he will be our friend and co-operate with us. If the local agents will get together with the shippers and discuss their grievances carefully, I am satisfied that eight out of ten cases now brought before the commissions and legislatures could be disposed of in your conferences and never reach the commission. The average shipper is fair and wants only fair treatment, and when he is shown that he is receiving fair treatment he will be satisfied.

FAIR AND HONEST DEALING.

The heat of the present political campaign has brought out many candid suggestions from railway officials which were intended solely as business suggestions of interest to the public as well as the railroads. The idea has been, among railway officials, not to apologize for any known wrong that may have been committed by the railroads or the politicians and legislators, but to plead for fair dealing on both sides, as the interests of the roads are directly the interests of the public. The gist of the whole proposition was set forth in a brief address made at Centerville, Ia., on August 28, by Mr. Theodore Shonts, president of the Chicago & Alton-Clover Leaf System, an extract of which is as follows:

The transportation history of the country may be divided into three broad periods—the pioneer construction of the lines, next their development, and the third is the period of governmental control and interference. If the legislatures of the country, after passing laws to stamp out rebates and protect the public from fictitious issues of securities, and making the affairs of every railroad public property, through standardizing accounts, had stopped there, no evil would have been done; but the pendulum of public opinion continued to swing until many ill advised and hurtful laws were passed in various parts of the country. What we want now is honesty and fair dealing on both sides, and I tell you frankly that there can be no continued prosperity in any part of the country if the transportation interests are unfairly dealt with. Political pygmies, when in power, can easily legislate money out of corporations, but the political genius of all the giants cannot legislate money into corporations. Improvements involving hundreds of millions have been abandoned because of the vengeful spirit that has temporarily possessed the minds of men whose duty it is to carefully consider proposed legislation. The greatest menace today to a continuance of our country's growth, and the influence that is doing more than anything else to retard the return of prosperity, is the fear on the part of the people who own the railroads that the operation of their properties will be taken out of the hands of the trained men who are now directing them and turned over to boards of commissions, whether national, state or municipal, who will exercise full authority without the slightest financial responsibility.

The Brotherhood of Locomotive Engineers proposes to have a home of its own, which proposition appears like a wise one. Mr. W. S. Stone, grand chief of the organization, announced last month that the Brotherhood has decided to erect a building in Cleveland, Ohio, for a home office, the building, equipment, etc., to cost about a million dollars. It is to be twelve stories high and modernly equipped without, besides having a large auditorium with a seating capacity of about 1,600 or 1,800 people. This splendid organization now has a membership of over 63,000 men.

FROM MY OBSERVATION CAR,

By R. R. Jester.

You can always pick out a good, live rustler by the record he makes, also by the aggressive company he becomes associated with. To go into detail and relate all the good work accomplished by Mr. George B. Hild, since he has been associated with railway service, would not be in keeping with his modesty; but it is saying something commendable in stating that he is a popular traveling freight agent of Harriman Lines at Cincinnati and is the secretary of the National Association of Freight Traffic Agents, of which he has been a popular member since its organization. Mr. Hild has made many friends

GEORGE B HILL

with the business men in his city and territory, and is not far behind the steps of a good promotion. He is a worker anywhere he is placed and enjoys business as though it were a mere pastime.

* * *

Do you know where the official legal headquarters of the Southern Pacific Company are located? It is not in Wall street, nor even anywhere on the Southern Pacific road. It is in a suburb of Louisville, Ky., a place called Berchmont, where the assistant secretary of the road lives, Mr. J. B. Weaver by name. This office building, known as the legal headquarters, is no skyscraper, as it cost only about $100 and looks like a branch real estate office. The location is no choice of Mr. Harriman's, nor was it a choice of Mr. Huntington when he was at the head of the road, but through some phase in the charter granted the original company, the legal headquarters are supposed to be kept in Kentucky. The road was incorporated under the laws of Kentucky and is required to keep its main office in that state. The most important records of the Southern Pacific are kept by Judge A. P. Humphrey, a resident attorney at Louisville. Once a year the stockholders meet in that little modest office and hold their annual meetings, not through a matter of choice, but by legal necessity.

Another railroad man has gone wrong—that is an ex-railroad official. I see in the papers that Cal. E. Stone, formerly general passenger agent of the Great Northern, has broken into politics and is making the run of his life for the state legislature of Minnesota. Too bad! Too bad! He is one of the passenger officials for whom I always held a high regard, and I never would believe anyone could mislead him. Next thing we know he will be trying to get into Congress at Washington, then we will be as—well I am not going to say it now, for he may not get so bad after all. No doubt he means alright even if he does not know any better. I do not know with what party he is affiliated, but suppose, of course, it is the Prohibition. He is making his headquarters at St. Paul yet, and is in the political arena at that point. Anyway, success to Mr. Stone! May he make the path a stoney one for his opponent.

* * *

Have you any idea how many miles of new road will be needed in this country in the next ten years? If not, just keep track of the new arrivals that come into the world in that time. As Mr. Harriman says, that every time a baby is born the railroads must lay a new rail. That is a queer way to compute railway development in this country, but I guess it is about the proper basis. By the way, do you know how many rails there are in a mile of track? If you don't, you can't figure out how many babies must be born to every mile of track. I would figure it out for you but prefer to have you do it yourself. Then figure out how many new cross-ties are required also. That is easy, too.

* * *

Some time ago Mr. J. Kruttschnitt, director of operation of the Harriman lines, was visiting one of the big shops of the system in company with a clerk who supposed he knew something about mechanics. The two wandered into the smith shop and saw the men making the old-time car links by welding them at one end. Before leaving the shop Mr. Kruttschnitt instructed the foreman to have the links welded on the side instead of the end. The foreman knew better, and so reported the incident to the S. M. P., who laughed at the suggestion from the higher official. Nevertheless, Mr. Kruttschnitt visited the same shop later, and again saw the men at the forge making links in the same old style. He went to the foreman and said: "I thought I told you to have the links welded at the side." The foreman said: "I know you did, but that way will never do, as the end is the place to weld them to make them hold the best." The official replied: "You are right; just make them all like you have been doing." The clerk was not so wise about smithing as he thought he was.

* * *

Is there any freight traffic man that has not seen a copy of the proceedings of the National Association of Freight Traffic Agents? If there is, he should get in touch with Secretary George B. Hild, of Cincinnati, and join the organization. Mr. Hild is with the Southern Pacific, but is never too busy to send application blanks and receipts to every eligible freight traffic agent who knows a good thing when it is shown him. It is worth joining just to get in touch with the best that is going, to help ones self to get higher up in the world, and to mix with a bright lot of traffic men who can do anyone good.

* * *

On September 16, Col. J. J. Hill, of the Great Northern, celebrated his seventieth birthday in the old-fashioned style by entertaining some of his old friends and fellow workers. I was not present myself, but am confident that they had a good time in St. Paul that day—that is Mr. Hill and his friends on the Great Northern. A goodly number of the old railroad employes joined in the friendly festivities, and helped to make Mr. Hill about twenty years younger than his age indicates. I hope he lives to celebrate his 140th birthday.

On September 10, the stockholders of the Denver & Rio Grande authorized the issuance of $150,000,000 in bonds, the issuance of notes for that amount for three years, and the purchase of the franchises and properties of the several subsidiary railroad companies controlled by the Gould interests in Colorado and Utah. The notes which will be issued may be extended to five years if the company so desires, and will be secured by the new bond issue which will replace all outstanding bonds. The notes will be issued so that money may be raised without delay. Besides providing for improvements and extensions of the Denver & Rio Grande lines, the money which will be raised will be used in paying for construction work on the Western Pacific, building from Salt Lake City to San Francisco.

PERSONAL

EXECUTIVE, OPERATING AND PURCHASING.

George C. Foy has been made chief dispatcher of the Pere Marquette at Detroit.

W. J. Pace has been appointed trainmaster of the Canadian Northern in Dauphin, Man.

K. D. Dunlop has been elected a Director of the Chicago Great Western, vice **H. E. Fletcher.**

W. C. C. Meehan has been appointed superintendent of the Grand Trunk Pacific at Melville, Sask.

J. D. Brennan has been made trainmaster of the International & Great Northern at Palestine, Tex.

W. S. Carson has been made trainmaster of the Mexican Central at Mexico City, vice **J. F. Casey,** resigned.

H. W. McMaster has been made general manager of the Wabash-Pittsburg Terminal properties at Pittsburg.

R. O. Cowling has been appointed trainmaster of the Oregon Railroad & Navigation Co. at Starbuck, Wash.

A. C. Emery has resigned as purchasing agent of the C. T. T. R. R. Co. at Chicago and the office is abolished.

T. P. Sexton, has resigned as car inspector on the Peoria & Eastern division of the Big Four to engage in other business.

John W. Dixon has been appointed assistant general solicitor of the Erie, with office at 50 Church street, New York.

John Mahoney has been appointed trainmaster of the Chicago & Alton at Springfield, O., succeeding **E. H. Junod,** resigned.

G. S. Flourney has been appointed assistant general manager of the Fitzgerald, Ocilla & Broxton, with office at Fitzgerald, Ga.

Silas W. De Wolf has been appointed general superintendent of the Texas-Mexican, with headquarters at Laredo, Tex., vice **Font Rice, Jr.**

M. W. Delbit has been made superintendent of the Missouri and North Arkansas, vice **S. A. Nichols** resigned, office at Eureka Springs, Ark.

H. H. Brewer has been made general superintendent of the Lake Superior division of the Grand Trunk Pacific at Winnipeg, vice **O. O. Winter,** resigned.

F. E. McCormain has been made division superintendent of the New York Central at Oswego, N. Y., and **C. Christie** is division superintendent at Watertown, N. Y.

P. J. Signor has been made train master and **O. O. Hollingsworth** has been made chief train dispatcher of the St. Louis, Brownsville & Mexico at Vanderbilt, Tex.

J. N. Pemberton has been appointed acting trainmaster of the Missouri Pacific, with headquarters at Hoisington, Kan., vice **F. J. Avery,** granted leave of absence.

W. E. Green, vice-president and general manager of the Trinity & Brazos Valley, has resigned. **R. H. Baker,** president, will assume the duties of general manager.

G. W. Taylor, superintendent of transportation of the Southern Railway, has been appointed general superintendent of transportation, with office at Washington, D. C.

D. W. Steefer has been appointed acting trainmaster of the Grand Trunk Pacific at Westford, Ont. **W. C. Caruthers** has been appointed chief despatcher at Melville, Sask.

L. E. Weidner has been appointed inspector of stations of the Philadelphia & Reading, the Atlantic City Railroad and the Gettysburg & Harrisburg, with office at Reading, Pa.

M. J. Gordon, division counsel of the Great Northern at Spokane, Wash., has resigned to engage in other business. **Albert J. Laughon,** first assistant, succeeds Mr. Gordon.

L. E. McClure has been made train master of the Rock Island at Little Rock, Ark., vice **J. E. Votaw** resigned. **J. E. Quigley** becomes chief train dispatcher and **J. E. Elwood** night dispatcher at that point.

E. O. Griffin has been appointed to represent the Texas Car Service Association at Galveston, Tex., whose duties will be to attend to the assessment and collection of demurrage which accrues on the tracks of the Galveston Wharf Co. and the Southern Pacific Terminal Co

L. S. Berg, president of the Mobile, Jackson & Kansas City, has been elected president of the New Orleans, Mobile & Chicago, which is the merger of the M., J. & K. C. and the Gulf & Chicago. **W. F. Owen** is general manager of the new line. **G. W. Gray** is secretary-treasurer, offices at Mobile, Ala.

H. H. Brown, superintendent of the Eastern division of the Frisco System at Springfield, Mo., has been appointed superintendent of the Kansas Division, with headquarters at Neodosha, Kan., in place of **LeRoy Kramer,** transferred to the Central division at Fort Smith, Ark. **A. O'Hara,** formerly superintendent of the Eastern division, will resume his old office, succeeding Mr. Brown. **C. H. Schleyer,** superintendent of the Central division, will be transferred to the Western division with headquarters at Enid, Okla., vice **A. J. Sams,** assigned to other duties.

TRAFFIC AND ACCOUNTING.

G. B. Jenkins has resigned as cashier of the Norfolk & Southern.

G. W. Pence has resigned as commercial agent of the Texas Midland at Terrell, Tex.

R. E. L. Bunch has resigned as traffic manager of the Norfolk & Southern at Norfolk, Va.

W. H. Paul has resigned as general agent of the Denver & Rio Grande at Goldfield, Nev.

Alfred Darrow has resigned as advertising manager of the Missouri Pacific at St. Louis.

J. S. Kimmerly has been appointed traveling agent of the Rock Island at Fort Worth, Tex.

J. S. Brown has been appointed assistant general freight agent of the Illinois Central at Chicago.

E. R. Lauer has been appointed agent of the Erie Despatch at St. Joseph, Mo., vice **P. W. Peterson.**

W. O. Rock has been appointed division passenger agent of the Erie, at New York, vice **H. W. Hawley.**

S. J. Henry has been appointed assistant general freight agent of the Northern Pacific at St. Paul, Minn.

F. P. Best has been made chief clerk in the Southern Pacific's steamship offices at Havana, Cuba.

C. M. Harris has been made city ticket agent of the International & Great Northern at Ft. Worth, Tex.

S. A. Kendig, traveling passenger agent of the Santa Fe at Temple, Tex., has been transferred to Houston.

T. P. White has been appointed car service agent of the Grand Trunk Pacific, with office at Winnipeg, Man.

J. R. Guyton has been appointed chief rate clerk of the Santa Fe at Galveston, Tex., succeeding **D. P. Brown.**

A. B. Waldron has been made freight agent of the Texas & Pacific at Abilene, Tex., vice **Alex. Burr,** resigned.

W. P. Guttery has been appointed dining car inspector of the Chicago & Alton and Toledo, St. Louis & Western.

E. P. Cockrell has been appointed assistant general passenger agent of the Chicago, Indianapolis & Louisville.

Alfred Darlow, advertising agent of the Union Pacific at Omaha, Neb., has resigned to engage in private business.

M. H. Bohren of Chicago has been chosen president of the National Association of Traveling Passenger Agents.

George D. O'Connor has been appointed traffic manager of the Walla Walla Valley Traction Co., Walla Walla, Wash.

M. J. Tarpy has been appointed passenger agent of the Canadian Pacific at Niagara Falls, N. Y., vice **R. F. Schornstein.**

C. C. Taylor, freight agent of the Mobile & Ohio at Jackson, Tenn., has been appointed traveling freight agent at that place.

F. F. McArthur has been made advertising manager of the Mexican Central at Mexico City, vice **W. B. Leeming,** resigned.

C. H. Gulick has been appointed soliciting freight agent of the Lehigh Valley at Auburn, N. Y., vice **W. L. Donaldson,** resigned.

M. U. Randall has been made general immigration agent of the Burlington in Colorado, Wyoming and Montana, office at Denver.

H. G. Duke has been appointed traveling freight agent of the Southern Railway at Montgomery, Ala., vice **G. N. Quigley,** resigned.

P. H. Byers, traveling freight agent of the Evansville & Terre Haute at Evansville, Ind., has resigned to engage in private business.

E. S. Jacobs has been appointed chief clerk in the general freight and passenger agent's office of the Q., O. & K. C., at Kansas City, Mo.

W. H. Quigg has been made general freight agent of the Atlanta, Birmingham & Atlantic at Atlanta, Ga., vice **J. J. Campion,** resigned.

C. H. Hunt, heretofore wastbound agent of the Delaware, Lackawanna & Western, has been appointed commercial agent at St. Louis, Mo.

C. W. Tolliver has been appointed joint agent of the Louisville & Nashville and the Atlanta, Birmingham & Atlantic at Birmingham, Ala.

H. H. Cage will hereafter represent the Erie Railroad as general southern agent in charge of freight and passenger traffic at Memphis, Tenn.

H. E. Hershey, industrial agent of the Santa Fe at Galveston, Tex., has resigned to become secretary of the Waco, Tex., Business Men's Club.

F. W. Kirtland has been appointed assistant general freight agent of the Florida East Coast at St. Augustine, Fla., vice **G. C. Floyd,** transferred.

J. G. Lowe has been appointed general agent of the Harriman lines at St. Louis, vice **L. E. Townsley,** resigned to engage in private business at Chicago.

H. A. Jordan, commercial agent of the Central of Georgia, has been appointed general freight and passenger agent of the Wadley Southern, at Swainsboro, Ga.

J. S. Purdy, agent of the Texas & Gulf at Longview, Tex., has been appointed also general freight and passenger agent, vice **E. B. Rembert,** assigned to other duties.

E. C. Cockrell, chief clerk to the general passenger agent of the Chicago, Indianapolis & Louisville, has been appointed assistant general passenger agent at Chicago.

S. G. Beckley, assistant general eastern agent of the Kanawha Despatch, has been appointed general eastern agent, in New York, succeeding **A. G. Troup,** resigned.

D. J. Byars has been made acting commercial agent of the International & Great Northern at Ft. Worth, Tex., and **C. Hanson** is traveling freight agent at that point.

E. G. Lutz has been appointed commercial agent of the Atlanta & West Point at Montgomery, Ala., vice **W. J. Parker,** who is on leave of absence on account of illness.

F. W. Milling has been appointed traveling freight agent of the Baltimore & Ohio at Huntington, W. Va., vice **G. M. Freer,** whose title was commercial freight agent.

M. B. Hoffman has been made general agent of the St. Joe & Grand Island at Chicago, office 346 Marquette building. **G. S. Wood** is soliciting freight agent at that point.

A. F. Dion, freight agent of the Quebec & Lake St. John at Quebec, Que., has been appointed freight agent of the Canadian Northern Quebec, at Quebec, vice **S. F. Beamish.**

James Copeland has been appointed freight claim agent of the Southern Pacific lines in Oregon and of the Oregon Railroad & Navigation, at Portland, Ore., vice **G. M. Glines.**

F. E. Potts has been appointed soliciting freight agent of the Santa Fe at Beaumont, Tex., succeeding **Melvin Thompson,** transferred as soliciting freight agent at San Antonio, Tex.

J. L. Edwards has been appointed commercial agent of the Southern Railway at Birmingham, Ala. **C. H. Pratt,** soliciting agent at Birmingham, has resigned, and the office is abolished.

F. J. McDonald, traveling freight and passenger agent of the Southern Pacific at the City of Mexico, has taken charge of the office of general agent at Monterey, Mex., vice **H. N. Gibson,** deceased.

B. F. Wyly, Jr., traffic manager of the Lackawanna & Wyoming Valley, at Scranton, Pa., has resigned to become district manager of the Southern States Life Insurance Co. at Montgomery, Ala.

C. D. Whitney, assistant general freight agent of the Missouri & North Arkansas, has been appointed traffic manager at Eureka Springs. **W. S. Roberts,** general passenger agent, has resigned.

A. R. Brasted, soliciting freight agent of the Rock Island and the St. Louis & San Francisco at Denver, Colo., has been appointed traveling freight agent at Denver. **George Nichols** succeeds Mr. Brasted.

J. R. Dunbar, general eastern agent of the New York, Ontario & Western, has been appointed general freight and passenger agent, succeeding **Frank Smith,** resigned. **J. B. Stewart** succeeds Mr. Dunbar.

Torrence Kight, soliciting freight agent of the Santa Fe, has been appointed traveling freight agent at San Antonio, Tex. **Melvin Thompson,** assistant freight agent at Beaumont, Tex., succeeds Mr. Kight at San Antonio.

Phil Johnson has been made traveling passenger agent of the Rock Island, and **A. E. Dove** becomes city passenger agent at Wichita, Kans. **H. F. Bascom** has been made city passenger agent of the Frisco at that point.

George W. Winters, manager of the Beaumont, Tex., Freight Bureau, has been appointed general freight and passenger agent of the Orange & Northwestern, succeeding **J. W. Parker,** assigned to other duties, office at Beaumont.

W. P. Warner, division freight and passenger agent of the Chicago, Milwaukee & St. Paul at Mason City, Iowa, has been appointed assistant general passenger agent of the lines in South Dakota and Montana, with office at Butte, Mont.

W. H. Ardley, auditor of disbursements of the Grand Trunk, has been appointed acting general auditor, vice **N. J. Power,** granted leave of absence. **J. M. Rosevear** has been appointed auditor of disbursements, offices at Montreal, Can.

Charles A. Bland, traveling freight agent of the Georgia Railroad, at St. Louis, Mo., has been appointed general freight and passenger agent of the Liberty-White Railroad, with office at McComb City, Miss., succeeding **S. B. Paton,** resigned.

C. L. Guest, New England freight agent of the Lehigh Valley, has been appointed West Bound freight agent at 707 Railway Exchange, Chicago. **J. H. McCrea** succeeds Mr. Guest at 262 Washington street, Boston, and 39 Church street, New Haven, Conn.

J. L. Boyd, general Agent at Lake Charles, La., of the Kansas City Southern, has been appointed general agent of the freight department at Beaumont, Tex., succeeding **J. C. Mow,** appointed contracting freight agent. **F. E. Haskell** becomes commercial agent at Lake Charles.

C. B. Foster, district passenger agent of the Canadian Pacific at Toronto, has been appointed assistant general passenger agent at Vancouver, B. C., succeeding **E. J. Coyle,** resigned to engage in private business. **R. L. Thompson,** general agent at Cincinnati, Ohio, succeeds Mr. Foster.

C. S. Orcutt, traveling freight and passenger agent of the Wabash at San Francisco, Cal., has been appointed general agent at that place, succeeding **L. R. Robinson,** who was made assistant general manager of the Canadian Pacific Despatch, at Boston, Mass. **C. S. Arnold,** contracting agent of the Wabash in San Francisco, succeeds Mr. Orcutt.

C. H. Jackson, commercial agent of the Missouri Pacific and Iron Mountain at Memphis, Tenn., has been appointed assistant general freight agent at Little Rock, Ark., succeeding **E. H. Calef,** formerly division freight agent at Little Rock and now made assistant general freight agent at St. Louis. **R. M. Dozier** becomes commercial agent at Memphis.

The following appointments have been made on the Trinity & Brazos Valley: **J. I. Johnson,** commercial agent at Galveston, Tex.; **J. N. Steel,** traveling freight and passenger agent at Houston, Tex.; **W. A. Schrivner,** traveling freight agent at Fort Worth, Tex.; **H. P. Bonnor,** contracting agent at Dallas, Tex.; **T. G. Frazee,** contracting agent at Fort Worth.

A. J. Lytle has been made northern passenger agent of the Queen & Crescent at Chicago, vice **W. A. Beckler,** made assistant general passenger agent at Cincinnati. **J. B. Bannon** has been made assistant general freight agent at New Orleans, vice **W. H. Quigg,** resigned. **A. J. Chapman** has been made assistant freight agent at New Orleans, vice **J. B. Bannon,** promoted.

H. C. Snyder, division freight agent of the Erie at Buffalo, N. Y., has been appointed assistant general freight agent of the lines west of Buffalo, with office at Chicago, succeeding **G. B. Whittlesey. C. W. Clark,** general freight agent of the lines west of Buffalo succeeds Mr. Snyder; **H. W. Forward,** division freight agent, Chicago district, succeeds Mr. Clark; **F. G. Lantz** succeeds Mr. Forward.

J. F. Logan, traveling passenger agent of the Southern Railway at St. Louis, Mo., has been transferred to Louisville, Ky. **F. C. Richardt,** city passenger agent at St. Louis, succeeds Mr. Logan as traveling passenger agent at that place. **D. M. Nation** has been appointed city ticket agent at Louisville, Ky., and **A. C. Mathias** has been appointed city passenger agent at St. Louis, succeeding Mr. Richardt.

W. F. Schmidt, industrial commissioner of the Wabash, has been appointed assistant general freight agent at St. Louis, Mo. **H. E. Watts,** division freight and passenger agent at Moberly, has been appointed assistant general freight agent at St. Louis. **W. A. Hopkins,** commercial agent at Salt Lake City, succeeds Mr. Watts at St. Louis. **J. L. Yundt,** traveling freight agent at Salt Lake City, succeeds Mr. Hopkins.

W. H. Abel, division passenger agent of the Chicago & Alton at Springfield, has been appointed assistant general passenger agent at Kansas City, vice **T. J. Burns, Sr.,** retired. **C. R. Murray,** division passenger agent at Mexico, Mo., succeeds Mr. Abel and **A. D. Perry** succeeds Mr. Murray. **Thomas Drennan** has been appointed general agent at Streator, Ill. **R. A. Guest** has been appointed passenger and ticket agent at Springfield, Ill., succeeding E. Wilson, resigned.

F. S. Holbrook, general freight agent of the New York, New Haven & Hartford, has resigned to become chairman of the Uniform Classification Commission. **T. R. Haskins,** freight traffic manager of the New England Navigation Co., has had his authority extended over the lines of the N. Y., N. H. & H., with office at New York. **L. H. Kentfield** has been appointed general freight agent, with office at New Haven, Conn. **Geo. M. Mead** has been appointed assistant general freight agent, with office at Boston.

R. E. Eggebrecht, assistant general freight agent of the Iron Mountain at St. Louis, Mo., has been appointed assistant general freight agent of the Missouri Pacific also. He will have supervision over matters pertaining to coal, grain and grain products. **E. H. Calef** has been appointed assistant general freight agent of the Missouri Pacific and the Iron Mountain at St. Louis, with supervision over matters pertaining to cotton and its products, lumber and forest products. **W. A. Rambach** has been appointed assistant general freight agent at St. Louis, vice **E. B. Lane,** resigned. **A. T. Stewart,** assistant general freight agent, has been appointed assistant to the vice-president in charge of traffic, with office at St. Louis. **R. L. Arnett** has been appointed commercial freight agent of the Missouri Pacific at Fort Scott, Kan., succeeding **F. L. Huesmann,** deceased. **C. C. Carson** has been appointed district passenger agent at Joplin, Mo. The following have been appointed traveling passenger agents: **J. A. Steltenkamp,** at Cincinnati; **W. Delaney,** at St. Louis; **Thomas Hughes,** at Omaha, Neb.; and **W. W. Richmond** at Little Rock, Ark. **H. L. Pease** has been appointed city passenger agent at Chicago, and **Frank P. Prosser** has been appointed city passenger agent at Joplin.

ROADWAY AND ENGINEERING.

E. W. Kolb has been made engineer of electrical signals of the Rock Island, office at Chicago.

E. A. McFarland has resigned as chief engineer of the Harriman lines in Arizona and Mexico.

Geo. W. Davis has been made signal engineer of the Chicago & Alton vice **Wm. Davis,** resigned.

W. O. Houston has been made chief engineer of the New Orleans Great Northern, office at Covington, La.

H. V. Wallingford has resigned as inspector of bridges and buildings of the Santa Fe at San Bernardino, Calif.

J. T. Gardner has been made engineer of maintenance of way of the Mexican Central at Mexico City, vice **L. N. Jones.**

S. C. Grant has been appointed signal supervisor of the Nebraska division of the Union Pacific, succeeding **E. W. Kolb,** resigned, office at Omaha.

R. M. White, resident engineer of the Delaware, Lackawanna & Western at Buffalo, N. Y., has been appointed division engineer, succeeding **G. J. Ray.**

W. E. Baker has been made signal engineer of the Illinois Central at Chicago, **H. F. Lomas** has been made assistant signal engineer, and **D. R. Morris** is signal inspector.

C. C. Smythe has been appointed acting general foreman of the bridge and building department of the Chicago, Cincinnati & Louisville, at Peru, Ind., vice **S. H. Shinn,** resigned.

S. E. Hanna, division engineer of the Iron Mountain, has been appointed division engineer of the Missouri division at De Soto, Mo., succeeding **E. C. Welch,** transferred. **R. C. White** succeeds Mr. Hanna, with office at Wynne, Ark.

W. C. Smith, engineer in charge of maintenance of way of the Northern Pacific at St. Paul, Minn., will have jurisdiction of the lines east of Trout Creek, Mont. **A. R. Cook,** division engineer at Tacoma, Wash., has been appointed engineer in charge of maintenance of way of the lines west of Trout Creek, with headquarters at Tacoma, Wash. **B. L. Crosby** succeeds Mr. Cook.

MECHANICAL.

J. H. O'Brien has resigned as master car builder of the Mexican Central at Mexico City.

W. M. Saxton has been made locomotive foreman of the Grand Trunk Pacific at Bigger, Sask.

Jas. Martin has resigned as master mechanic of the Liberty-White railroad at McComb, Miss.

H. J. Ackworth has been made storekeeper of the Erie at Kent, Ohio, vice **H. E. Lind,** transferred.

Frank Howard has resigned as general foreman in the car department on the Eastern division of the Wabash.

E. B. Jones has been made roundhouse foreman of the Pecos Valley at Roswell, N. Mex., vice **B. Barton,** resigned.

A. J. Barragar has been appointed storekeeper of the Texas Midland, succeeding **Dan Quill,** resigned, office at Ferrell, Tex.

B. J. Peasley has been appointed master mechanic of the Missouri Pacific at Ferriday, La., succeeding **J. Schumacher,** transferred.

A. H. Gairns has been appointed master mechanic of the Oregon Short Line at Pocatello, Idaho, vice **Henry Carrick,** assigned to other duties.

A. H. Morris has been made general storekeeper of the Harriman lines in Oregon, office at Portland, Ore., vice **A. H. Cunningham,** resigned.

C. B. Williams has been made general storekeeper of the Central of New Jersey, vice **W. F. Girten,** resigned; office at Elizabethport, N. J.

E. F. Jones has been made acting master mechanic of the Chicago & Western Indiana and the Belt Ry. of Chicago, vice **Peter H. Peck,** granted a leave of absence.

David Patterson has been appointed master mechanic of the Kansas City, Mexico & Orient, and **J. S. Hardie** has been appointed general foreman of the car department, both at Fairview, Okla.

W. L. Tracy has resigned as master mechanic of the Louisville & Nashville at Louisville, Ky., to become assistant superintendent of machinery of the Missouri Pacific at Kansas City and **H. C. May** becomes master mechanic at Louisville and **J. J. Sullivan** succeeds Mr. May at New Decatur, Ala.

OBITUARY.

W. T. Bergs, formerly traveling freight agent of the C. P. & St. L., died at St. Louis on August 26.

F. L. Huesmann, commercial agent of the Missouri Pacific at Ft. Scott, Kan., died on August 29.

F. H. Garfield, division freight agent of the Erie at Jamestown, N. Y., died on August 31, aged 54 years.

M. H. Minto, formerly master mechanic of the L. & N., at Mobile, Ala., died on August 24, aged 60 years.

Charles K. Lord, president of the Tonopah & Tidewater, died in Philadelphia on September 10, aged 60 years.

David D. Stubbs, general manager of the Occidental & Oriental Steamship Co., died in San Francisco, September 7.

T. M. Cunerty, with the Erie at Chicago, and formerly president of the Chicago Transportation Association, died on September 1.

W. C. Modisett, general freight and passenger agent of the Green Bay & Western, died at Green Bay, Wis., on September 1.

W. D. Murdock, formerly passenger traffic manager of the Mexican Central at Mexico City, died on September 5, aged 56 years.

Elbridge H. Beckler, civil engineer in charge of construction of the Pacific extension of the Chicago, Milwaukee & St. Paul, died at Missoula, Mont., on August 27, at the age of 54 years.

Frank P. Sargent, Commissioner General of Immigration and Grand Master of the Brotherhood of Locomotive Firemen, died in Washington, D. C., on September 4, aged 54 years.

THE "ALL RED ROUTE"—THE GRAND TRUNK PACIFIC.

BY H. R. CHARLTON.

ARTICLE I.

The building of the Grand Trunk Pacific is the biggest project of the kind on the continent. It involves the construction of a main line 3,600 miles long, with 5,000 miles of branch lines. It will make the Grand Trunk System one of the important railway system of America.

It will be "All Red," that is to say, all British, as it crosses the continent in Canada. It will shorten the run around the world and put Yokohama eight days nearer to Liverpool than it is today by the shortest route. It will run, in the West, through a thousand miles of wheat land, and then plunge into a thousand miles of what was a wilderness five years ago when "Smith, the Silent," was sent by Van Orsdal to find a path to the Pacific and search out the secrets of the "Silent places." It will render possible, here, the development of a vast unmapped empire, richer in natural resources, perhaps, than any other unscarred wilderness under the sun. It will be the means of unearthing vast mineral regions, of developing new ranching and stock-raising districts and of bringing to the settled sections the timber, copper, coal and oil of the Athabasca and the Peace. Eventally it will reach down the Yukon river to Dawson, bridge the waterway and couple this continent up with Siberia, forming the long link in the chain of steel that must some day encircle the sphere.

It will create and bring into being at the Pacific terminus the new port of Prince Rupert, where a model city is being built on the heights overlooking one of the finest natural harbors of the world.

It will bring to this new port and to this land-locked harbor millions of bushels of hard wheat from the Saskatchewan Valley, which will be ground into flour and shipped to the Orient, the little brown children of the Sun. It will makes homes for the homeless, and costs two hundred million dollars when it shall have been finished and furnished.

The Grand Trunk Pacific Railway Company, which was incorporated by act of Parliament, 1903, is under agreement with the Canadian government for the construction and operation of a line of railway across Canada, from the Atlantic to the Pacific Ocean, wholly within Canadian territory, of an estimated mileage of main line of 3,600 miles; in addition to which there will be constructed several branch lines of considerable length and importance, including a lire from the main line southerly 199 miles to Fort Williams and Port Arthur, on Lake Superior, for the purpose of reaching navigation on the Great Lakes; also from the main line southerly about 229 miles to North Bay or Gravenhurst, in the Province of Ontario, to make connection with the lines of the Grand Trunk Railway Company of Canada, and another line from the main line southerly to Montreal. Branch lines are proposed as well, to Brandon, Regina, Prince Albert and Calgary, and to Dawson in the Yukon Territory. A subsidiary company, having for its object the construction of branch lines in addition to and including those provided for in the charter of the Grand Trunk Pacific Company, was incorporated by act of Parliament, 1906, under the name of the Grand Trunk Pacific Branch Lines Company, with a capital stock of $50,000,000. This company's charter authorizes the construction of twenty branch lines of railway, embracing a total mileage of about 5,000 miles, and described as follows:

The branches on the Eastern division, as will be observed, are designed to make connection between the territory along the St. Lawrence River and the Great Lakes with the main trunk line of the National Transcontinental Railway, and on the Western division they are projected for the most part through desirable territory to reach important competitive points. This great undertaking, which surpasses in magnitude and importance any plan of railway construction hitherto conceived as a whole, has been projected to meet the pressing demand for transportation facilities in British North America, caused by the large tide of immigration which is now flowing into that country from Great Britain, Northern Europe and still more extensively from the Western States, seeking the rich lands which lie so abundantly in the Provinces of Manitoba, Saskatchewan and Alberta. The agreements betwen the company and the government providing for this new transcontinental railway are of a twofold character, which, when carried out, will combine a railway constructed at the expense of the government, with the lines of a private corporation, into one system, under the entire control, management and operation of the Grand Trunk Pacific Company.

The authorized capital stock of the company is $45,000,000, of which $20,000,000 may be issued as preferred. The Grand Trunk Railway Company of Canada is to acquire all of the common stock (except shares held by directors) in consideration for guarantees, etc., and must retain a majority holding during the term of the agreements with the government. The eastern terminus of the railway will be at Moncton, New Brunswick, from which point the seaport of Halifax will be reached over the Intercolonial Railway, a branch line being projected to St. John. The distance to the first named port is 183 miles, and to the latter 89 miles. The western terminus will be at Prince Rupert, British Columbia, on the Pacific Coast, near the southern boundary line of Alaska. For the purposes of construction, the projected line is divided into two great divisions, namely the Easten Division and the Western Division, the point of division being Winnipeg, Manitoba.

In order to insure for the protection of the company as lessees of the Eastern Division of the said railway, the economical construction thereof in such a manner that it can be operated to the best advantage, it is agreed that the specifications for the construction of the Eastern Division shall be submitted to and approved of by the company before the commence of the work, and that the said work shall be done according to the said specifications and shall be subject to the joint supervision, inspection and acceptance of the chief engineer of the company. Since the rental payable by the company to the government for the use of the Eastern Division is a percentage on the cost of construction, it will be observed that it is a matter of great importance to the company that this item, "cost of construction," shall be determined on the most economical bases consistent with a well-built railway, in which respect the foregoing provision contained in the agreement, fully protects the company. Pending the completion of the main line of the Eastern Division, sections thereof, as constructed, may be taken over and operated by the company on such terms as may be agreed upon, which terms are not to be less favorable than those of the lease of the whole division. The rental payable by the company under the terms of its lease of the Eastern Division will be as follows:

For the first seven years of the said term the company shall operate the same, subject only to payment of "working expenditure"; for the next succeeding forty-three years the company shall pay annually to the government, by way of rental, a sum equal to 3 per cent per annum upon the cost of construction of the said division, provided that if, in any one or more of the first three years of the said period of forty-three years, the net earnings of the said division, over and above "working expenditure," shall not amount to 3 per cent of the cost of construction, the difference between the net earnings and the rental shall not be payable by the company, but shall be capitalized and form part of the cost of construction, upon the whole amount of which rental is required to be paid at the rate aforesaid after the first ten years of the said lease, and during the remainder of the said term.

At the expiration of the period of fifty years the company has the privilege of an extension of the lease for another period of fifty years. In the event the government then determines not to undertake the operation of the said division, but should the government take over the operation of this division, the company shall be entitled for a further period of fifty years, to such running powers and haulage rights as may be necessary to continuity of operation between the said Western Division and other portions of the company's system and the Grand Trunk Railway system, on such terms as may from time to time be agreed upon.

By the terms of the lease to the company of this portion of the railway it will also be seen that the company will practically have the free use of it for a period of seven years, and taking into account the time allowed for construction, which is fixed at seven years, no payments will require to be made on account of rental until 1919, and since it is to pass through an entirely new and undeveloped section of the country, which is now known to be rich in agricultural and mineral resources, as well as timber, it is anticipated that long before the first payment on account of rental becomes due, the company will have reaped a rich harvest from the traffic that will exist upon its completion. This section of the line between Quebec and Winnipeg will pass through what may appropriately be called the mineral belt of Eastern Canada, as in this district adjacent to the main line are located the now famous Cobalt deposits, as well as nickle, copper, iron, etc., which are only awaiting the advent of the railway to be brought forth for manufacture.

(TO BE CONTINUED.)

CONSTRUCTION AND IMPROVEMENTS.

The Arkansas Central has arranged to build a six-mile extension from Paris, Ark.

The Kansas Southern & Gulf is a new line projected between Omaha, Neb., and Wichita, Kans.

The Wichita Falls & Southern has completed a line of extension between Olney, Tex., and Belknap, thirteen miles.

Work has been resumed on the Pacific Railway & Navigation between Hillsboro, Ore., and Tillamook, eighty-five miles.

The Gulf & Interstate is expending about $1,000,000 on harbor improvements at Port Bolivar, Tex., where deep water is obtained.

There seems to be a good field in India for railway supplies, as within the last year or so 2,516 miles were being constructed or sanctioned.

It is the plans of the Pacific & Idaho Northern to extend the line early next season from Evergreen to Roseberry, Ida., about forty-five miles.

A. A. Sweet, of Price, Utah, is general manager of the Southern Utah, which proposes to extend about twenty miles from Price to the coal fields.

H. B. Peebles, of Woodward, Okla., is among the promoters of the Canadian River Railway, which is projected from Woodward southwest about 220 miles.

Haskell & Rule is the name of an electric line that proposes to be constructed between Haskell and Rule, Tex. J. H. Mahon, of Haskell, is promoting the road.

The Billings & Northern, a branch of the Great Northern, is being completed, and is to be opened between Billings and Laurel, Mont., early in November.

Mr. Morgan Jones is promoting the Ballinger & Abilene road to build between these two cities of Texas. Particulars can be secured from the mayor of Ballinger, Tex.

It is reported that the Northern Pacific is to build a branch from Mandan, N. Dak., north along the Missouri river valley for 300 miles to connect with the Great Northern.

The Rogue River & Oregon Southern proposes to build from Grant's Pass, Ore., to Waldo, about fifty miles. O. S. Blanchard, of Grant's Pass, is among the promoters.

The Meridian & Southwestern is being promoted by W. H. Hughes, of Raleigh, Miss., and others. It is proposed to build between Meridian and Natchez, Miss., about 100 miles.

The Oregon & Washington has been contracted for for about eight miles out of Seattle, Wash. The road is a Harriman line to connect Seattle with the Oregon Short Line.

According to press reports from San Francisco, the California & Northeastern is to be extended quite extensively in Oregon at an early date. This is a portion of the Southern Pacific.

The Spokane, Columbia & Western has been incorporated in Washington state to build from Spokane to Miles City, sixty miles, via Davenport and Peach. It is to be a portion of the Inland Empire.

A. E. Wiest, Jr., of Ochiltree, Tex., is vice-president and general manager of the Enid, Ochiltree & Western, which company proposes to build a line from Enid, Okla., to Dalhart, Tex., via Ochiltree, 265 miles.

The J. E. Kirk Construction Company, of Oklahoma City, has been awarded the contract for the construction of twenty miles of track of the Wichita Falls & Northwestern between Randlett and Emerson, Okla.

Monroe, Farmersville & Hope is a road projected between Hope, Ark., and Monroe, La., a portion of which (thirty miles) is to be built this coming winter or spring. D. H. Nichols, of Monroe, La., is interested.

The Mexican Southern has purchased the property of the Oaxaca & Orient, and will soon reconstruct the road and extend it to a large undeveloped country. The road is to be completed to Flacolula this coming winter.

Mr. John Doyle, of Grand Rapids, Mich., has the contract for grading and bridges of twenty miles of the Grand Rapids & Northwestern. The National Construction Company of Chicago is interested in the development of this road.

The Graham, Roswell & Western has been chartered in Texas to build from Graham to the western boundry of Yoakum county 265 miles, passing through Kent, Garza, Lynn and Stonewall counties. S. R. Crawford, of Graham, is president.

The Marshall & East Texas is the new name of the Texas Southern, which was sold recently. The road is being rebuilt, and the present owners propose to extend it from both ends, building to Paris, Tex., fifty miles on the north, and extend it south about 225 miles.

The annual report of the Canadian Pacific shows that this road has 708 miles under construction, the largest extensions being from Nokomis, Sask., to Hardesty, 329 miles; from Moose Jaw, Sask., northwest 107 miles; from Sheho to Lanigan, Sask., eighty-three miles, and from Regina, Sask., to Bulger, forty-three miles.

President McCrea, of the Pennsylvania, in speaking of their tunnels and terminal work at New York City, is quoted as follows: "We expect to have our complete tunnel and subway system in operation by May 1, 1909. The system will be electrified throughout, and it is expected that the total cost will not exceed the $90,000,000 set aside for the work. Sooner than the people of Newark realize, it will be possible to go from this city by tunnel to Long Island City. There will be a monster central railroad passenger train station in Harrison. The ground for this central station will be broken shortly."

A newspaper report states that the contracts have been awarded by the receivers of the Seaboard for the carrying out of terminal improvements decided upon at Tampa, Fla. These improvements involve the expenditure of $500,000 at that place. Active operations under the contracts already has been begun. The entire work is to be completed by January 1 next. The improvements include the development of Grassy Island, a tract about 100 acres in area in Hillsboro Bay, opposite Tampa. Extensive lumber wharves are to be erected thereon, and a modern warehouse and elevator for handling phosphates.

President Stilwell, of the Kansas City, Mexico & Orient, made the following report to the stockholders on September 10: The Red river bridge, 2,800 feet long, has been completed. Track has been laid to a point 284 miles south of Wichita, Kans., and to within five miles of Chillicothe. North of Sweetwater, track has been laid to a point within three miles of Crowell, Tex., and should reach the latter town in the next two or three days. Note from the above, one-half the gap has been completed, and we are laying track at the rate of one mile per day. The last span of the Conchos river bridge, east of Chihuahua, was set August 27; should be completed shortly, which places the Orient in position to handle ore shipments from vast lead, copper and zinc mines east of the Conchos river."

About fifty miles of seventy-five pound rail is being laid by the Frisco on the Central division from Kiamichi to Kosoma and from Fort Smith to Jenson. In addition to the five $10,000 coal chutes authorized some time ago, three more will be erected at the following points: St. Marys, Mo.; Fayette Junction, Ark., and Oklahoma City, Okla. This will make in the neighborhood of $80,000 which the Frisco has expended for new coal chutes. Since July 1, 1908, the Frisco has authorized an expenditure of about $26,000 for passing tracks on the Southwestern division. Two of the tracks are to be located between Depew and Stroud, and two between Wellston and Luther. The others are between Kellyville and Bristow, Chandler and DeBolt, and Luther and Ludlow. Extensions to passing tracks have been authorized at Quinton, Adamsville and Cordova, representing an expenditure of approximately $8,000. A number of new depots have also been authorized to be built by the Frisco.

The annual report of the Denver & Rio Grande for the year ending June 30, 1908, was given out last month by President Jeffery, and it shows that the gross revenue from operation was $20,386,431.39, being $542,259.10 less than the previous year; the operating expenses were $13,038,809.49, being a decrease of $3,523.77; and the net revenue was $7,347,621.90, a decrease of $536,735.33.

MECHANICAL

DROVERS' CARS ON THE SANTA FE.

Something new in freight equipment is being introduced by the Santa Fe for the convenience and comfort of its stock shippers. It is known as the Drovers' Car, of which the Santa Fe shops at Topeka, Kans., are building nine. They are to be used on the main line in Kansas, particularly between Kansas City and Newton. The road handles a large volume of the stock business from Kansas and the Southwest to Kansas City, and to accommodate the shippers who accompany their stock to market, this form of a sleeper was designed, the first of its kind the RAILWAY JOURNAL has heard of in this country. The cars

INTERIOR VIEW OF A DROVERS' CAR ON THE SANTA FE.

are to be 40 feet long each, and contain ten sections to the car. After a night's ride in a compartment of this nature, the shipper feels better the next morning than if he had to ride in a way car. Besides other conveniences the cars are each provided with wide berths and lavatories. While this car is a new idea, it illustrates the development of an important industry in the southwest—live stock raising. As a general thing, roads handling a large amount of this traffic arrange, if possible, to handle it in strictly live stock trains, for which special fast service is employed.

HANDLING AND DISPATCHING ENGINES.

The topic, "Quick Dispatching of Engines at Terminals and How to Handle Most Economically?" was discussed at the recent convention of the International Railway General Foremen's Association. The following is a paper on the subject by Mr. G. W. Keller of the N. & W. at Portsmouth, Ohio:

This entirely depends upon the facilities and the condition in which the engineman delivers his engine to the cleaning pit. You may have a modern cleaning pit, coaling and sanding station and an engineman to deliver his engine to the cleaning pit dry and a boiler full of water, and when received in this condition, with a modern cleaning pit, coaling and sanding station, the power can be dispatched very quickly and with little cost. But, where you receive an engine at the cleaning pit with flues leaking and with no modern facilities for handling cinders, coal and sand it requires a great deal more time to handle the engine, thus reducing the quick dispatching of this engine and increasing the cost. Again, an engineman may deliver his engine to the cleaning pit dry and have but very little water in the boiler. This retards the quick dispatching, for this engine should not have the fire cleaned until the boiler has been filled with water, for it certainly is injurious to an engine to clean the fire and then pump the boiler full of cold water. This, I think, is the prime cause for so many flues that start leaking on the cleaning pits. All this retards quick dispatching. Instructions issued to the enginemen by our master mechanic are to deliver engines to the cinder pits with a full boiler of water and no water must be put in the boiler until the fire has been cleaned and a bright fire placed against the flue sheet and the engine started for the roundhouse and filled up while in motion. Another thing which adds to the quick dispatching of power is that the dispatcher and yardmaster and roundhouse foreman are in touch with each other and are working in harmony. The dispatcher will very often ask the engineman at a close office to the terminal if his engine is in condition to go right back on arrival. If his reply is "Yes" and the yardmaster will rush him through the yards to the cleaning pit it will add greatly to the quick dispatching of power. Along the line of quick dispatching of power at a terminal I might say that we have to have the co-operation of the engineman and have them take the best care of their engines while on the road. An engineman should set his injector to supply the boiler over the division and then avoid, all he can, putting in water standing still. Engines that are handled in this manner you can most always turn quickly at a terminal. But where an engineman will let the water get low and slap on one injector, and probably both of them, and fill the boiler quickly with cold water and make a practice of filling his boiler at water tanks, he is always having flue trouble. When engines are received at the cleaning pits leaking, it prevents the quick dispatching of power. On the road is where the power must be taken care of if we expect to have good results in the quick dispatching of same. The flue question seems to be the main issue in turning power quickly at a terminal and, as before stated, engines must be taken care of while out on the road and the engineman may be doing all he can to take good care of his engine and the fireman tearing down all the

engineman is trying to hold up. With the heavy power we have nowadays, with the wide and shallow fire-boxes, the firemen soon have a fire that they cannot see the flue sheet at all, and the fire has gotten so high and heavy in the center that he is unable to shove it ahead and he then has lost his fire at the flue sheet, which then starts the flues to leaking and probably loosens them in the sheet and they will not take up again until worked in the shop. I do think that this heavy firing while on the road is the cause for so much flue trouble and so many failures. I do not think that these classes of engines, with the wide and shallow fire-boxes, should be fired with a light fire and not have a fire to the crown sheet in the center of the fire-box and none at the flue sheet. The more leaks that develop on the road lessens the quick dispatching of power at a terminal and increases the cost.

PAPER BY WM. HALL, C. & N. W. RY.

The question of quick dispatching of engines at terminals is a very live subject, and a very important factor towards successful railroading. The management of the various railroads of today want all the power possible to be in continuous service, earning dollars and cents, instead of laying idle in the roundhouse at the various division points. The question is: How shall this be accomplished in the shortest given time? There are several important features that must play a part in this, viz: Advance information, harmony, efficiency, promptness, aggressiveness and well planned and arranged conveniences.

Advanced information: The roundhouse foreman should keep in close touch with the train dispatcher, as to what engines are coming in, and what time they are expected. The roundhouse foreman should also be advised in advance of the nature of repairs that might be needed upon the arrival of the engine, provided the repairs be other than ordinary running repairs. This will enable him to get a line-up of the material needed and distributed to the various departments, and have it advanced as much as circumstances will permit.

Engineers should lose no time upon arrival in examining their engines and make their report, reporting only such work as is necessary, thus enabling the roundhouse foreman to get his work slips lined up by the time the engine reaches the house. The engine inspector should be alive to the situation, and can be of valuable assistance to his foreman by getting his inspection done immediately when the engine arrives. He should be on the lookout for engines coming in so that no delay will be caused by his inattention to business.

Perfect harmony should exist at all times between the train dispatcher, roundhouse foreman and the heads of the various departments, all friction should be eliminated, and each one should be loyal enough to work for and advance the best interest of the company employing him. An efficient organization is quite an important factor in the quick dispatching of engines, and should be able to cope with the situation at any and all times. The roundhouse foreman should have an assistant outside, having charge of the dispatcher's clinker pit force, table men, and common help around the house; with a live man in this position, some wonderful results can be accomplished. He should relieve the foreman of the supervision of dispatching engines, and other outside work, thus enabling him to keep in close touch with the force doing the repair work. The outside assistant should be notified as to what engines are wanted first, such engines as are wanted in specified stalls, engines wanted in without coal, sand or water, also be furnished with a list of engines due for wash-out each day, and if he be a live man, he will immediately notify the roundhouse foreman every time an engine due for wash-out comes in, and find out if he should put her in the wash-out stall or not. Telephones should be used wherever practicable, as many steps and much time will be saved by their use.

The foreman and his assistant should keep in close touch at all times; in fact the foreman should give his assistant a general line-up from time to time as conditions change. Engines from the time of arrival to the time of leaving should receive prompt attention from all concerned; working on the "Do It Now" principle, and not putting off till tomorrow what can be done today. There should be sufficient force of men to accomplish the desired results, and here is where the outside assistant can get in his work by seeing that engines are not kept waiting to be dispatched.

Upon the arrival of an engine at the terminal, she should immediately be taken in charge by the dispatcher, who should see to it that the boilers are filled with water, providing there is no boiler work to be done, or flues caulked, he should examine the fire-boxes while the fire is bright, and if everything is all right he should consult with the assistants as to whether the fire should be knocked out or simply cleaned. If no boiler work is to be done the fire should be properly cleaned, thus saving contraction of the flues, also saving time and fuel.

Now, as to the conveniences, these should be so well planned and arranged that there should be no reverse movements of an engine. There should be at least two or more tracks leading from the turntable so that the outgoing engines will not interfere with the incoming engines. The turntable should be operated by air or electricity, as the operation of the table by hand is old-fashioned and antiquated. Modern clinker pits should be used and conveniently located, the sand towers and water tanks should be so located that the engine will be advancing with each operation. The roundhouse should be well lighted and ventilated, as men will work to better advantage. It would also be a good plan in large and busy roundhouses to divide the force so as to work the full twenty-four hours, thereby taking care of the running repairs promptly and avoid holding the engines over. Engines that need more than is commonly known as running repairs, however, should be held over for the day force, when the roundhouse is backed by the machine shop, blacksmith shop and boiler shop, this work being done more cheaply in the day time than at night. By this plan of taking care of engines during the entire twenty-four hours a larger number of engines can be had for the prompt movement of traffic.

All roundhouses should have a few machine tools, so that if it is necessary to drill a hole, turn up a bolt, or any small job, it will not be necessary to start up the entire machine shop, or if this is not practicable a few tools should be grouped in the machine shop and run with a line shaft, connected with an independent motor. This should be so arranged that the motor should be used only at night, the shaft being driven from the main shaft during the day.

When engines are held in for other than light repairs, and after being re-examined by the inspector, the roundhouse foreman should look over his work reports, work which requires the assistance of the machine shop or other departments should be removed and taken to the respective departments at the earliest possible moment, so as to give them a chance to get their work done without delay to the roundhouse force, thus working hand in hand with each other. The foreman of each department that has work to do should be notified of the time the engine is expected to leave the house, so that they may be governed accordingly, always giving running repairs the preference.

Wherever it is practicable separate stalls should be used for washing-out purposes, as it does not interfere with the rest of the roundhouse force while engines are being washed out. These stalls should have good drainage.

A hot water plant is a very necessary adjunct to a roundhouse, as by the use of hot water for washing-out purposes the boilers are not subjected to such severe strains due to expansion and contraction, as when washing out with cold water. The hot water should be used for filling up the boilers after they are washed out, so that an engine can be gotten into service in the shortest time possible.

Harmonious co-operation between the mechanical and operating departments, especially during periods of congestion, or when power is in great demand, will facilitate matters greatly, and be a great factor in accelerating the movements of engines at terminals. An aggressive progression policy should be adopted by each and every one, each man putting it up to the next one to see that no delay is caused through his negligence.

SUCCESS IN WELDING FLUES.

EDITOR RAILWAY JOURNAL:

Since you have written up the "O'Neill Rapid Flue Welder" in the RAILWAY JOURNAL I have been asked many questions in regard to it, and should you give me the space I will endeavor to reply to some of them.

First—What is the cause of flues sticking on the mandril?

Answer—This is because the mandril is either too large or on account of the position the rollers are set. It is a mistaken idea that three rollers should bear on the flue the same. One of the rolls does the welding and the other two merely act as sizers. One roll bears upon the flue and presses it against the mandril and welds it, the other two, while they bear on the flue, do not force it against the mandril pin, but simply puts the flue to gauge or size; by this you see that the flue is always

loose on the mandril and can easily be pulled off if rollers are set right.

Second—How are flues scarfed?

Answer—Flues are scarfed by means of three bevel rollers and a mandril to suit. Those three rolls can bear on the flue equal as the mandril is short and has a collar, which piece to be welded is butt up against. The bevel rollers have a tendency of throwing the piece of flue from the short mandril so it comes off very easily.

Third—How do you swage flues to fit?

Answer—This is done by putting on the welding rolls and use a mandril small enough to allow for what swage you may need. As the machine runs very fast, this is done in an instant.

Fourth—How do you spread or open up flues to engage pieces?

Answer—This is done by a three-cornered mandril which is bolted on to the face of the machine and the flue made hot, shoved on to this mandril which opens the end of a flue in an intsant to engage the piece to be welded on; and a three-cornered mandril of the same kind is used to open up the flue at the other end so no shimming or lining up is needed. This is done by the same heat in which the flue is annealed and is also done in an instant.

Fifth—How to cut off ragged ends and cut pieces to be welded on.

Answer—This is done by a shaft which is bolted on to the face of the machine, the rollers being taken off with a cutter disc in the end of the shaft which the flue is forced against by a foot treadle. This is not, however, included in this machine unless parties call for it, as I prefer to sell a separate cutting tool instead of one attached to the machine. I am also asked if I scarf my flues. While I make a practice of scarfing two-inch flues it is not altogether necessary, as the machine rolls them down so close that the joint can barely be seen.

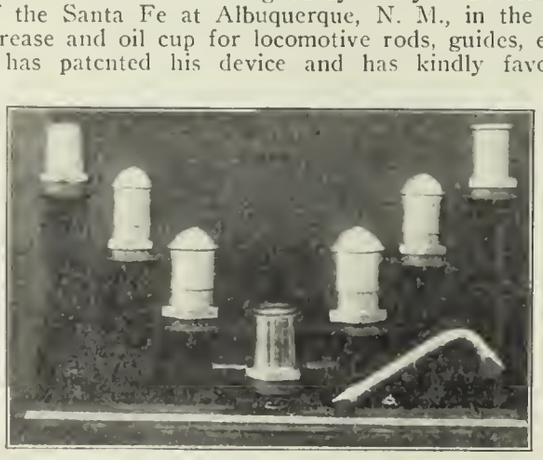
I am also asked what kind of flues I use for safe ends. I use the Selby steel tube for safe ends and find no trouble in welding the steel end to the iron flue. Of course, the next time the flue is welded it is a steel piece welded to a steel piece, but I find no trouble in welding them, as some of my friends speak of. I also use a coke fire, which, of course, makes no difference, either oil or coke can be used.

I will also state that parties requiring a flue welder will see at a glance that this is the simplest, most durable and one of the best flue welding machines on the market.

R. J. O'Neill,
2543 Byron Place, Denver, Colo.

TOWERS' GREASE AND OIL CUPS.

A clever idea has been designed by Mr. Jas. Towers, master smith of the Santa Fe at Albuquerque, N. M., in the form of a new grease and oil cup for locomotive rods, guides, etc. Mr. Towers has patented his device and has kindly favored the



THE TOWERS' GREASE AND OIL CUPS.

Railway Journal with illustration and description of it. The cups are made of wrought iron and steel, are light but strong and durable.

The plugs used are only an inch thick and do away with jam nuts entirely. To fill the cups, screw out the plug, fill the cup with the lubricant desired and replace the plug. This single operation does away with the annoying use of a monkey wrench or of jam nuts. The cups, covers, plugs and wrenches are all made on the Ajax forging machine and the cost of labor and material is very small.

IRON AND STEEL—EARLY HISTORY.

By George H. Williams.

(Continued From September Issue.)

Again, speaking of iron, Pliny says rostra, from which it has been supposed that the ancients had one way to make steel, another way to harden or temper their tools, particularly their picks and anvils, and that Nucleus Ferri was melted down in both. The difference, moreover, was assigned to the furnaces, that is in the manner of ordering iron to be made into steel, or for the superlative hardening of the heads and bits of tools, and not in the matter of which they were made, for both were done boiling them in molten iron. It is stated that the ancients, in steeling their tools, boiled them in metal to such a degree of hardness or temper as was requisite, and then afterwards hammered them. Iron, made this way into steel, becomes a kind of electrum and is filled with an exceeding brittle and hard body of its own nature. This way was used when the strongest temper and hardness were required, as for picks and anvils. Layard has demonstrated by the results of his explorations in Ninevah, that the Assyrians were familiar with steel and its manufacture. The collections now in the British museum, illustrative of ancient Ninevah, includes knives, saws, picks and hammers. The most perfect and interesting object in this collection is a saw with a blade three feet eight inches long and four and five-eighth inches broad throughout its length except at one end, where it is narrowed for the purpose, no doubt, of being fit in a handle. Percy says there is no evidence to show whether the blade consisted originally of iron or steel.

There is evidence to connect India with a very early knowledge and use of iron and steel. The Delhi Laht, the Swastika and Pramantha, the iron bears of the Hindu temple, the Cootuub, North Stair Pillars and the materials used in the Temple of Kanava, or Black Bagoda in the Temple Madras. All bear evidence of a considerable advancement in the manufacture of these metals during the earliest times of which we have any records.

Aristotle, B. C. 384, describes the process of making the Indian steel which bears the name of Woots. It was, he says, produced by heating on a charcoal hearth, about one pound weight of malleable iron, cut into small pieces with about 10 per cent of dried wood, in clay crucibles, the covers of which were fitted on with clay. Galen mentions that knives made from Indian steel were often so brittle that the cutting edge splintered off, owing to their having been improperly tempered. In the manufacture and use of steel, as in other features of civilization, the Chinese appear to have attained a very early and remarkable proficiency. Chinese records do not enlighten us as to the precise period at which the art of reducing metals from their ores became known in that country, but it is evident that it must have been some centuries before the Christian era. It is not unreasonable to conclude that this knowledge was at any rate concurrent with, if not antecedent to the discovery of the attractive power of the loadstone by the Chinese in the reign of Emperor Hoangti, about 2600 B. C. Mention is made of steel in the most ancient of the Chinese writings, and Leihtu, an author who flourished about 400 years B. C., describes the process by which it was made. In the book it is stated that among the articles forming the musical gemstone were iron, silver, steel and stones for arrow heads. Legge points out the difference of soft iron and hard iron or steel as distinguished by the Chinese, and remarks that in that time ironmasters were appointed in several districts of the old Chon to superintend the works. With the exception of this passage, however, it is considered probable that there is no distinct allusion to iron in Chinese writings older than 1000 B. C. In describing the manufacture of steel in China, the Pi-tan states that wrought iron is bent or twisted up and unwrought iron is thrown into it. It is then covered up with mud and subjected to the action of the fire and afterwards to the hammer. On this passage Day remarks that it comes remarkably near describing the process of immersing wrought iron, either into molten cast iron or heating it with iron ore and fuel covered over with layers of mud or clay to exclude as much as possible the oxidizing influence of the external atmosphere. At a subsequent period the Chinese records describe the different kinds of steel produced. That obtained by the first process they called Ball steel .from its bounded form, or sprinkled steel from the pouring of water. Another kind is spoken of as False steel, and it is quaintly added that iron has steel within it as meal contains vermicell. Again, three kinds of steel are described thus: First, that which is produced by adding of unwrought to wrought iron while the

mass is subject to the action of fire; second, pure iron, many times subjected to fire, produces steel; third, native steel, produced in the southwest at Hai Shau, and which is like in appearance to the stone called Tesezing—purple stone efforescence.

Steel continued to be manufactured in China to the present day. James Henderson, a commissioner of Lyhung, the governor-general of Chilili, and minister of the king of China, states that the steel which comes to Yangtsei is highly prized and demands much higher price than the Swedish steel imported into China. In Cape Colony the Kaffirs have from time immemorial produced a kind of steel by heating flaky ironstone in charcoal fires, and then with hammers and anvils of stone beating out the heads of their assegais. We learn from Mungo and Park that they found both iron and steel produced by the natives by a process not less less crude than interesting, which they describe with much exactness. The steel was fashioned into various instruments by being repeatedly heated in a forge, the heat of which was urged by a pair of double bellows made of two goat skins, the top of the bellows uniting before entering the forge, supplying a constant blast. It has been conjectured that the mystery of iron smelting was introduced into Africa by the Romans.

(TO BE CONTINUED.)

MR. UREN ON ASSOCIATION WORK.

The following paper was read before the recent convention of the International Railroad Master Blacksmiths' Association by Mr. S. Uren, of Sacramento, Cal.:

I have resigned the position of master blacksmith of the Southern Pacific shops on account of advanced age. Article X, Section 1, reads: Active members shall consist of master blacksmiths engaged in railroad locomotive and car shops. As I am not now engaged as a master blacksmith, if consistent, should be pleased to have my name registered as an active member. I have taken much interest in the Association, and was chairman of the meeting in Chicago to organize the Association in 1893, and have participated in the deliberations of every meeting, two excepted only. I shall continue to take the same interest in the future as in the past.

I am pleased to say that our annual reports have been highly appreciated by many of our superior officers, as they realize the benefits derived from the Master Blacksmiths consulting one another on the different methods of producing the many different members in the art of blacksmithing that enter into train service. Every important member on locomotives and cars has to pass through the blacksmith's hands, and every member of the Association has been using his best judgment in producing them in the past by the best and most economical method.

After consulting together in the convention, we find that some of our members have more advanced methods for producing the important work than others, regarding quality and economy. Consequently, when we return to our homes, we weigh the different methods brought out by the conventions carefully, and if they are an improvement on our old methods regarding economy, we adopt them.

I regret that some of our superior officers do not appear to appreciate the advantages resulting from the discussion and conversation in the corridors with Associate Master Blacksmiths relative to the different economical methods of producing railroad appliances. In corresponding with many of our members, I ask them why they do not come to the convention. They invariably reply that they cannot get transportation. From the writer's standpoint, the Master Blacksmiths' Association has done as much in the interest of railroad companies as any other mechanical organization, and am pleased to say has been endorsed by the Master Mechanics' and Master Carbuilders' Associations, as well as many eminent mechanics and high officials. Why some of our members cannot get transportation, I am not prepared to say. I know that the members referred to would appreciate coming to the convention and become familiar with the methods used in every shop in the country, and if he is convinced that the methods are an improvement on his own, he will adopt them. The railroad company will derive the benefit.

If, on the other hand, in his opinion his methods are preferable, he will give the other members the benefit of what he considers improved methods. There never was a time in the history of the blacksmith trade that demanded the consulting together of the Master Blacksmiths more than the present. The changed condition in producing railroad appliances that have taken place in the last twenty years are such that many of the old methods of forging have become obsolete. In many cases forgings that required a good smith thirty minutes to make are now produced in two minutes by mechanical devices, such as drop presses, forging machines and buldozers by the proper appliances of dies and formers. The different fuel for heating purposes in forge and furnaces are coal, gas and oil. Repairing frames (on engines). Another innovation is alloy or high speed steel for machinest tools. By meeting together annually, we get every man's experience relative to producing forgings by the improved devices.

The writer cannot understand why any railroad official can afford to permit his foreman to absent himself from a convention when so much practical knowledge in the art of blacksmithing can be acquired in every branch of railroad appliances. In 1893, I received several communications relative to forming a Master Blacksmith Association.

Mr. Younger, my first assistant foreman, and myself considered the matter and discussed the advantages that might be gained by our fellow craftsmen, as well as railroad companies, and came to the conclusion that such an association would be of vast benefit to all concerned. It is natural for every Master Smith to think his methods are the best, but when you come to the convention, and visit other shops, you may discover that some of your methods have become obsolete, and improved methods adopted. I regret to say that many are still staying with the old and expensive methods of producing forgings, while the more advanced shops have taken advantage of the changed conditions, and are producing forgings on scientific principles. Many eminent mechanics, as well as railroad officials have highly complimented the Association for the many interesting articles published in our annual reports. As before stated, having resigned my position as foreman Blacksmith and rolling mill of the Southern Pacific shops, after forty-one years of service, the first five years as blacksmith at the forge, five years as first assistant foreman, and thirty-one years as foreman, and helped to organize the Association in 1893, and am pleased to say have adopted several improved devices in the Sacramento shops brought out in the convention, and have imparted my own experience in the art of blacksmithing to the members of the Association. Consequently the benefit derived from Associational intercourse is invaluable to all concerned.

CASE HARDENING.

Read before the International Railroad Master Blacksmiths' Association convention by W. V. Laizure, of Dennison, Ohio:

Wrought iron is not possessed of property of hardening; articles made of wrought iron may be converted into steel without depriving the interior of its natural structure. The process is called case hardening. The object of case hardening is to obtain an external steel encasement with a core of fibrous iron in center. The effect is produced by air-tight box, and continuous heat from twelve to fifteen hours. Cast iron box is good for this work. Our practice at Dennison, Ohio, is by placing some limestone in bottom of box, and then cover that with boneblack, and place the work in the box until we have filled it, being careful not to let the articles come in contact with the box. We then put a good lid on the box and have the furnace ready at about 1,450 degrees. We have no special furnace for this work, we use our forging furnace. We put test pieces in, and then we can see by breaking just what has been done. We harden lots of cutters, and we give them more time in the furnace, up to twenty-four hours. These cutters are used on milling machines, and must be hard. Crank pin nuts and small nuts we put on mandrel, and place in box to harden. We use the boneblack that has been used once for this class of work and it seems to do very good. We also case harden with potash at the fire. This class of work is always in a hurry.

I find that all bad jobs of hardening are due to bad heating. I think that all heating for case-hardening should be done carefully, and not over-heat, and plenty of time.

There is no operation connected with case hardening which requires more watchfulness than that of heating, and if the parts to be hardened are carefully packed in boneblack, and given the proper time for heating, we will have a good job.

BALANCE OF THIS YEAR FREE.

Those who subscribe for the RAILWAY JOURNAL this month will receive it till January, 1910, for one dollar; the rest of this year free.

QUICK CASE HARDENING FOR EMERGENCY WORK.

Editor Railway Journal:

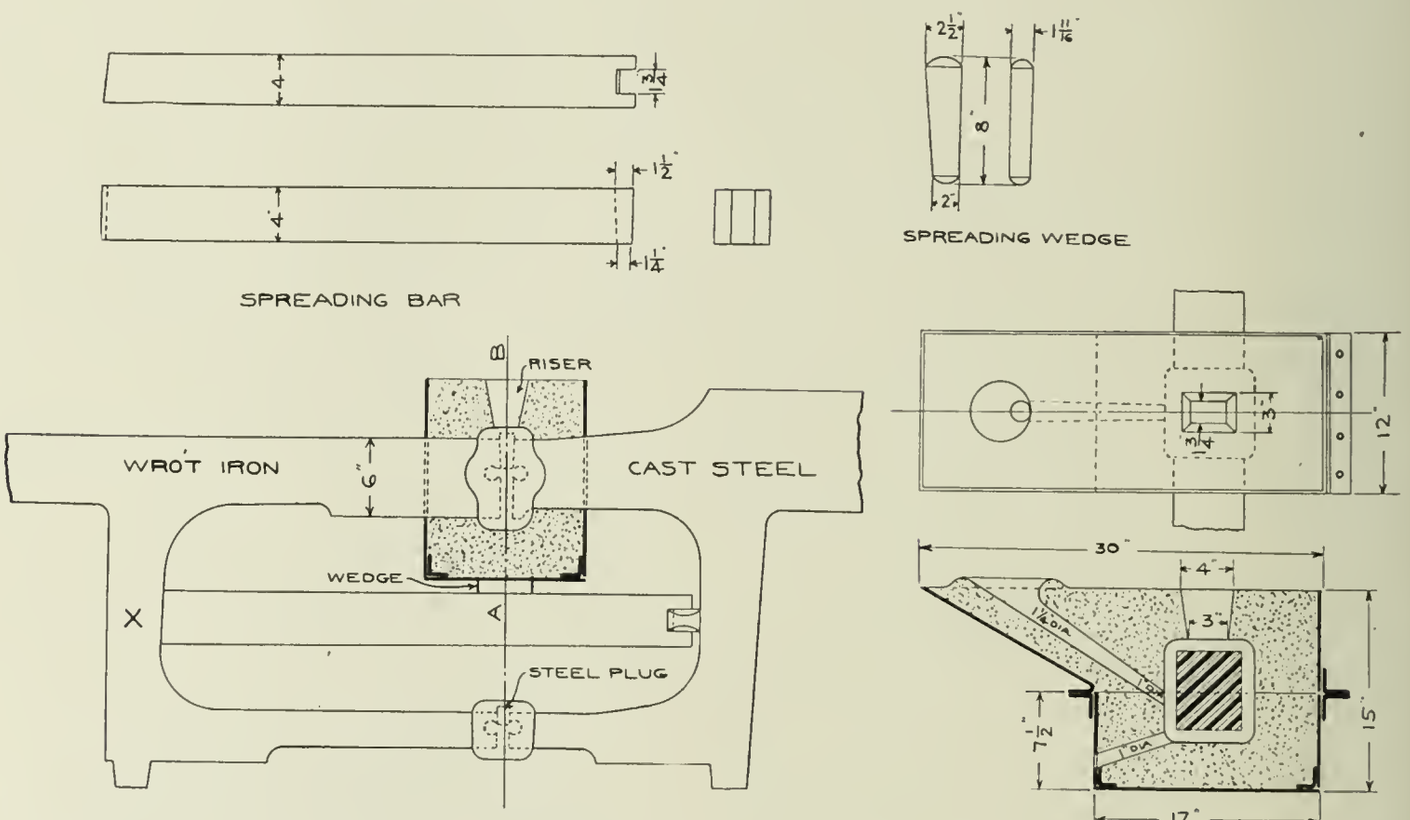
An excellent case hardening process that has been in use for the past three years in the Central of Georgia shops at Savannah, Ga., is as follows:

To 10 pounds of cyanide of potassium, add 1½ pounds of saltpetre, pulverize the whole, and store in a dry place for use. The article to be case hardened is heated to a bright lemon color and thoroughly coated with the powder, when it is placed again in the fire and heated as before, by using a long handled spoon, made by spreading a piece of ⅜ inch round iron (24 inches long) on one end. You can apply the powder while the work is in the forge fire, when you immerse in a bath of cold water, care being taken to let the case hardened article remain in the water until thoroughly cold to prevent the very hard surface from cracking.

This process is excellent for all motion work upon locomotives, etc., as it does away with the old, slow process of box hardening, which has become obsolete in all up-to-date shops.

Link and quadrants, etc., are heated in spring furnace, and when at the heat above given are treated with a coating of the powder and plunged in the cold bath.

J. W. Smith,
Master Smith, Central of Georgia Ry., Savannah, Ga.



PROCESS OF THERMIT WELDING—CENTRAL RAILWAY OF NEW JERSEY.

THERMIT WELDING OF LOCOMOTIVE FRAMES AND OTHER WORK.

Read before the recent International Railway Master Blacksmiths' Association by G. W. Kelly, of the Central of New Jersey:

We have followed this process in making repairs on locomotives since February, 1905. Our experience thus far is that repairs are permanent. We have in service at the present time 224 Thermit welds. I am aware that the majority of foremen blacksmiths in the convention here have a knowledge of the principles of Thermit, but, in behalf of those who are not familiar with it, let me quote a few lines from a lecture given by the inventor: "Just as generations passed over mineral coal without detecting its combustible properties, it was not known here-to-fore that aluminum belonged to the combustible products which, under certain circumstances, once ignited, continues its own combustion. Aluminum mixed with iron in combination with oxygen, forms the compound called 'Thermit,' which name is copyrighted. When this is ignited chemical re-action is the simplest, resulting in aluminum oxide and pure mild steel at 5,400 degrees Fahrenheit in 30 seconds. Thermit must be ignited by a so-called ignition powder. Thermit thrown into an open hearth fire will not burn because the temperature of the fire is insufficient to ignite Thermit. By no other known means has it been possible to produce liquid steel in so speedy and simple a manner. This superheated steel, when it comes in contact with bodies of wrought iron or steel at a red heat, must result in a perfect amalagamation."

In regard to locomotive frames the photograph in connection with this paper was taken from an engine now in the shops for light repairs. The forward steel section was applied March 7, 1907, and is one of the twenty applied since August 17, 1906. We now have eight continuous frame sections in service, the same as shown on page 103 of last year's proceedings, making fifty-six welds—no failures. Following is our method of applying these new cast steel sections:

As they are already machined ready to apply, the broken frame is cut off and new section bolted in, allowing ¾ to 1 inch for a free flow of Thermit. The frame is now trammed and jacked apart 7-32 to ¼ of an inch to allow for contraction. A short steel wedge is driven in the opening between the old frame and new section in both top and bottom rail, and jack removed. A wax collar, ¾ to 1 inch in thickness, is applied to top rail overlapping 1½ or 2 inches each side of opening. Bottom rail mould is made in two parts over wooden patterns and dried. The bottom half of the mould box for top rail is adjusted, and the spreading bar is placed under it, allowing 1 inch space between the two for a wedge to hold mould in position while preparing. The mould on top rail is then completed. The spreading bar holds the frame apart until the frame is preheated and the top weld made. When the Thermit becomes set, spreading bar and mould is removed, and mould applied to the lower rail and weld made. To relieve any strain due to uneven contraction, we heat front leg of second pedestal (see X on sketch). To arrive at close results, frame must be jacked apart from 3-16 to ¼ of an inch in proportion to size of frame. We make it a point to have our frames trammed 1-32 of an inch longer rather than short. The writer is still of the opinion that failures are the result of undue strain or neglect in making proper allowance for contraction.

See sketch of our standard mould. This will take a frame

4x4 inches to 5x6 inches. The pouring gate will take a flow of Thermit from a No. 75 crucible. Should a larger crucible be used with a tapping hole larger than ½ of an inch, the pouring gate should be made larger. The 1-inch round hole in bottom of mould is to let the wax run from the mould when the heater is placed in pouring gate. Before the frame becomes properly heated this hole is filled with a dry core after wax is burned out. We get a perfect combustion around the frame by letting the gas in the pouring gate. When the mould becomes dry, it is used as a furnace, and the frame can be brought to white or fusing heat in 60 to 70 minutes.

In repairing cast steel driving wheel centers, the use of wax for patterns has made the work much easier. Four or five spokes can be welded at one time. Photograph shows wheel with four Thermit welds on four consecutive spokes. We used for this job two crucibles, and had two pouring gates, each feeding two spokes. One advantage in making welds at the same time is the uniform contraction. If one or more spokes are solid in the same wheel section, they are heated to a red heat in a slow charcoal fire, while broken spokes are being pre-heated for welding. After welding, all spokes are allowed to come back together. In conclusion I wish to say that the use of Thermit has simplified the repairs on locomotives, and the results obtained have been so gratifying that there is no question about its merits if properly handled.

MASTER BLACKSMITHS' PROGRAM.

The following is the list of topics and committees of the International Railroad Master Blacksmiths' Association, appointed by President J. W. Russell:

Flue Welding—C. A. Sensenbach, chairman; J. W. Smith, C. A. West, J. J. Roach and J. W. Gorsuch.

Tools and Formers—J. W. Myers, chairman; P. T. Lavender, D. T. Hughes, William Price, J. Donahue.

Case Hardening—H. Penticost, chairman; W. C. Scofield, W. J. Shea, J. W. Donahue, J. G. Jordan and G. F. Hinkins.

High Speed Steel—W. F. Gorey, chairman; W. V. Laizure, P. J. Connerty, T. F. Buckley, Robert Henderson, John McNally, R. Tynan and J. W. Purkey.

Locomotive Frame Making and Repairing—G. A. Aubrey, chairman; John McNally, S. Uren, C. A. Stenker, James Fenwick and J. E. Carrigan.

Piece Work—J. J. Godsill, chairman; Grant Bollinger, C. E. Lewis, E. N. Campbell, Charles Reinhart, J. Desmond and S. Uren.

Hotel Arrangements—R. L. Williams, chairman; A. L. Guilford, James Grimes and G. A. Hartline.

Reception—J. S. Sullivan, chairman; W. C. Scofield and A. L. Woodworth.

Executive Committee—J. S. Sullivan, chairman; George Hartline, M. F. Gorey, F. F. Hoeffle and Thomas Keane.

The next annual convention is to be held at Niagara Falls, N. Y., beginning August 17, 1909. Applications can be secured any time from Secretary A. L. Woodworth, Lima, O.

NEW PROCESS OF WELDING.

Consular Agent John B. Brewer, at Weisbaden, describes the further activity of a German firm of chemists, according to the Daily Consular Reports, which he says has accomplished a new invention for the welding of steel pipes of large dimensions; a new briquetting method for small-grained iron ores; a new power gas from bituminous coal, and the distribution of heat throughout cities. A German company, which originated a new hydrogen process especially adapted for military aeronautics, has discovered a series of other processes related to their new water-gas system that are likely to play an important part in great American industries. Their efforts were especially fruitful in the iron and steel industries.

Above all, it is claimed that they have succeeded in welding steel pipes of large dimensions, such as neither the Mannesmann nor any other existing works can produce by their methods; at least not at the same rate of economy and quality. The welding is done at high speed, while labor and other costs are reduced to a minimum. The textile strength in the weld as compared with the strength of the plate is 90 to 95 per cent, which is rather remarkable. It is stated that the Japanese navy has adopted the new German system for the welding of their military masts on warships, etc., and that, after the same system, a British welding company has been formed this spring at Glasgow.

Astonishing results have also been obtained by the firm in question in a peculiar iron-briquetting method especially adapted for the conversion of fine grained, dustlike iron ores like those of the Mesaba range. As is known, these ores can now be worked in the blast furnaces only by a very inconvenient, wasteful, and therefore expensive system. By the new German hydrogen gas process, however, they are converted into extremely hard and porous lumps, in which the contents of pure iron are not, as with the other briquetting methods, diminished and deteriorated by admixtures, but rather increased and chemically improved.

ALEXANDER BULLOCK.

Since September, 1907, the smith-shop of the Santa Fe at La Junta, Colo., has been in charge of Mr. Alexander Bullock, who is considered one of the old-time boys at that point. Mr. Bullock is a native of Scotland, and came to this country about fifteen

ALEXANDER BULLOCK.

years ago. He has worked in many of the railway shops of this country, and has become an expert in his field of mechanism. He has become a specialist in repairing locomotive frames, and he has the reputation of being not only an expert, but also quick. Since working for the Santa Fe, Mr. Bullock has become quite popular with the officials and the men with whom he works in the shops. This fact is an endorsement of his mechanical ability and his personal characteristics.

HEAT BALANCES AND COMBUSTION IN LOCOMOTIVES.

Mr. L. H. Fry recently presented an interesting technical paper on the above topic before the British Institution of Mechanical Engineers, in which he referred to the performance of American railway locomotives as illustrations. The experiments and results of the engines were from the larger types. The text of Mr. Fry's paper is as follows:

With any boiler it is important to know not merely the efficiency of the boiler but the nature and amount of the various heat losses which occur, and the effect which the design of the

boiler has upon its efficiency and upon these heat losses under working conditions. In the following paper the author discusses these points in so far as the opinion gained from certain trials of locomotive engines furnishes data on which to pass such conclusions.

The tests were made on four different types of locomotives at the locomotive testing plant of the Pennsylvania Railroad. The illustrations show the details of the boilers of these locomotives. Fig. 1 is a single-expansion consolidation-type locomotive, No. 1,499, of the Pennsylvania Railroad. Fig. 2 is a single-expansion consolidation-type locomotive, No. 734, of the Lake Shore & Michigan Southern Railway. Fig. 3 is a Vauclain four-cylinder balanced compound Atlantic-type locomotive, No. 535, of the Atchison, Topeka & Santa Fe Railroad. Fig. 4 is a Cole four-cylinder balanced compound Atlantic-type locomotive, No. 3,000, of the New York Central & Hudson River Railroad. It will be seen that one of these boilers had a narrow fire-box and the other three wide boxes. Two of the boilers had no firebrick, while the other two had firebrick arches carried on water tubes.

The results of these experiments seem to show that the boiler efficiency is independent of the grate area; that is, that the same

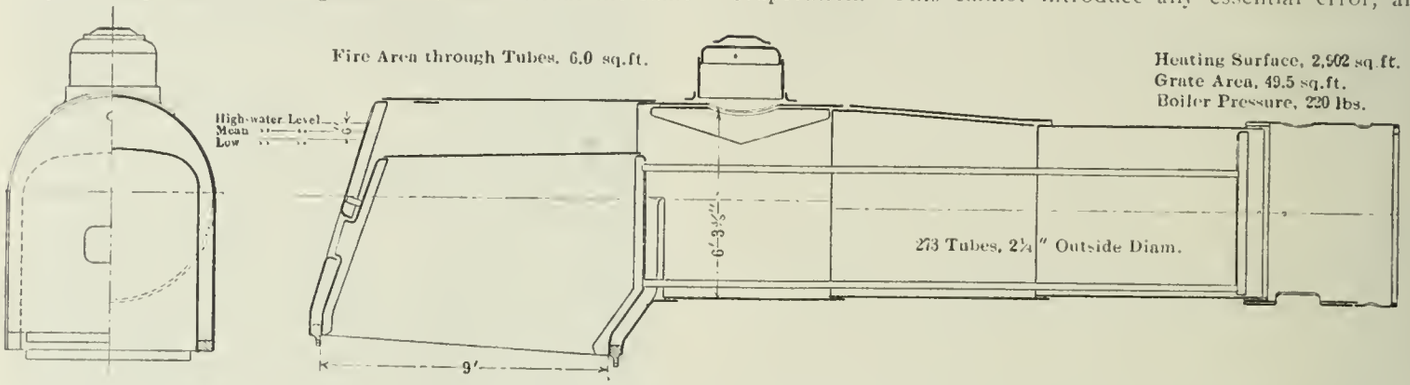


FIG. 3.—BOILER OF VAUCLAIN FOUR-CYLINDER BALANCED COMPOUND ATLANTIC-TYPE LOCOMOTIVE, ATCHISON, TOPEKA & SANTA FE R. R.

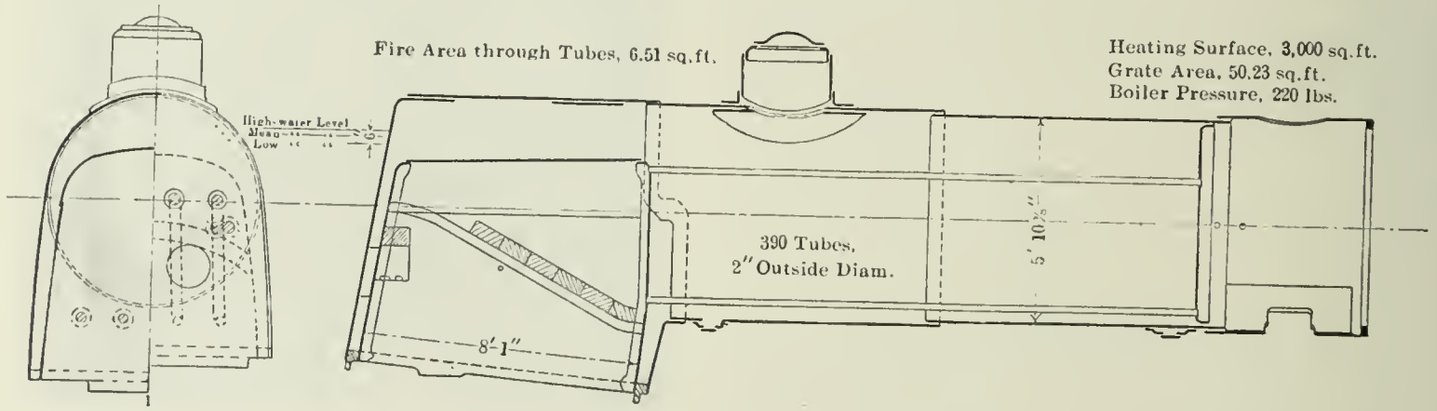


FIG. 4.—BOILER OF COLE FOUR-CYLINDER BALANCED COMPOUND ATLANTIC-TYPE LOCOMOTIVE, NEW YORK CENTRAL & HUDSON RIVER R. R.

results are obtained by burning 72 pounds of coal per square foot of grate area per hour on a grate containing 55.5 square feet of surface, as by burning 134 pounds of coal per square foot of grate area per hour on 29.76 square feet of grate area, the reason given for this being that the fire-box volume, which is constant, is the controlling factor.

The heat losses in a locomotive boiler divide themselves into three main groups:

1. Loss of heat in the products of combustion.
2. Loss of heat by external radiation.
3. Loss of heat by imperfect combustion.

These three losses, together with the heat usefully employed in the production of steam, must account for all of the heat contained in the coal and complete the heat balance.

(1) *Loss of Heat in the Products of Combustion.*—The products of combustion consist of certain dry gases, as shown by the analyses of the flue gases, and in addition to these a considerable amount of water vapor from the water of combustion of the hydrogen in the coal, and from the moisture in the coal and in the air. There is also a trace of sulphuric acid from the combustion of the sulphur. The water of combustion with the sulphuric acid amounted to 0.40 pound per pound of coal burned. The moisture in the coal was always in the neighborhood of 1 per cent, and therefore the water vapor produced, per pound of coal burned, may be taken with sufficient accuracy as 0.41 pound. This comprises the water of combustion and the moisture in the coal as fired. In addition to this vapor, the moisture in the air admitted for combustion must be taken into account. The percentage of moisture in the air varies from 0.48 to 1.25. The weight of the dry, gaseous products of combustion per pound of coal burned is 0.54 pound more than the weight of air supplied per pound of coal. The amount of heat carried off by the products of combustion depends on the weights of dry gas and water vapor produced per pound of coal burned, on the temperature at which they escape to the smoke-box, and on the specific heat of these substances. Although there is some evidence to show that the values of these specific heats vary with the temperature, the large majority of heat balances hitherto calculated have assumed constant specific heat values of 0.24 for the dry gases and 0.48 for the superheated water vapor.

(2) *Loss of Heat by External Radiation.*—This loss was not measured, and, as the loss by unburnt coal was not measured, the radiation loss cannot be determined by difference. It seems, however, permissible to assume that the loss by external radiation is 5 per cent of the heat utilized by the boiler in evaporation. This cannot introduce any essential error, and it harmonizes with the little that has been published on this subject.

(3) *Loss by Imperfect Combustion.*—This falls under two heads:

(i) Loss by production of carbon-monoxide.
(ii) Loss by escape of unburnt coal at chimney and ashpan.

(i) The first-mentioned loss can be calculated from the analysis of the flue gases. There is a general tendency for the loss by CO to increase as the rate of combustion is increased, but except in one instance there is no very serious loss on this score. One individual test shows a loss of 16.33 per cent by CO. This is due to the rapidity with which the air-supply falls off as the rate of combustion is increased. Evidently the difficulty of getting air to the fire limited the power of this boiler and prevented the rate of combustion being pushed above 90 pounds of coal per square foot per hour.

(ii) The loss of heat by the escape of unburnt coal is the most important loss in the heat balance when the boiler is working at full power. The coal escapes unburnt in three ways:

(*a*) Partially unconsumed as sparks.
(*b*) Partially unconsumed in the ashpan.
(*c*) As unconsumed gas in the products of combustion. This last entails a secondary loss by
(*d*) The sensible heat of the unconsumed gas in the smoke-box.

As the necessary observations were not taken, it is not pos-

sible in the present tests to determine the separate value of each of the four items of the loss by unburnt coal, but the total amount of heat lost can be determined by the method which is described below, and which is illustrated by the following example:

In one test there is known	Per cent.
Heat of evaporation	47.20
Heat lost by external radiation	2.36
Heat lost in production of CO	0.70
	50.26
This leaves the loss to be divided between the products of combustion and unburnt coal	49.74
	100.00

The heat lost in this test in the products of combustion is 19.30 per cent of the total heat of the coal *actually burned*. Now, if, for example, 25 per cent of the coal were to escape unburnt, the loss in the products of combustion would apply only on the remaining 75 per cent actually burned, and would be 0.75×19.3, or 14.5 per cent of the heat of all the coal fired. Consequently, if P is the percentage of heat lost by coal escaping unburnt, the loss in the products of combustion is

$\frac{100-P}{100}$ 19.3 per cent of the total coal *fired*, or calling this P_1 we have

$$P_1 = \frac{100-P}{100} 19.3,$$

and

$$P_1 + P = 49.74,$$

whence, by simple algebra, it is found that P, the loss by unburnt coal, is 37.70 per cent.

It appears that the efficiency of the absorption of the heat is practically independent of the rates of combustion and evaporation, so that under all conditions of working the heating surface absorbs about 81 per cent of the heat produced by combustion. Approximately, the same figure is obtained for all four boilers, although they vary considerably as regards design and ratio of heating surface to grate area. The figures show that the efficiency of the boiler, as a whole, is mainly determined by the efficiency of the combustion, which falls rapidly as the rate of combustion is increased.

Although the smoke-box temperature at which the products of combustion escape increases as the rate of combustion increases, the percentage of the total heat carried away by these gases is reduced. This is due to the reduction of the weight of gas produced per pound of coal burned. When the rate of firing is increased from 30 to 130 pounds per square foot of grate, the weight of the products of combustion is reduced from about 18 pounds to about 8.5 pounds per pound of coal fired. For complete combustion about 11 pounds of air are required, so that when the boiler is forced it is not possible to get enough air through the fire to burn all of the coal fired.

In examining the effect of the variation of grate area three series of tests were run: (1) with the full grate area of 55.5 square feet; (2) with the front of the grate covered with firebrick, so that the effective grate area was reduced to 39.5 square feet, the ratio of grate area to heating surface being 1 to 58.7; (3) with the effective grate area still further reduced to 29.76 square feet, giving a ratio of grate area to heating surface of 1 to 77.9. The results of these runs showed that at any given rate of evaporation there is very little difference between the efficiencies of the three series. Also at the lower rates of evaporation the largest grate gives the lowest efficiency and the smallest grate the highest efficiency; while at the high rates of evaporation the reverse is the case, the largest grate giving the highest efficiency. This is due to the fact that the resistance to the passage of the air through the grate is least with the large grate and greatest with the small grate. At low rates of combustion the most important losses are those due to an excess of air; consequently the large grate has the lowest efficiency. At the high rates of combustion the most important losses are those due to coal escaping unburnt from a lack of sufficient air for proper combustion, and hence the largest grate, by admitting the air most freely, gives the highest efficiency.

Since this year's crops have begun to move freely, the roads are reporting an increase in earnings, both freight and passenger. Altogether business conditions look encouraging.

OPPORTUNITIES FOR FOREIGN TRADE.

The following information has been furnished the RAILWAY JOURNAL by the Bureau of Manufactures, Department of Commerce and Labor at Washington, from which further information can be secured.

According to Consul General H. B. Miller at Yokohama, there is a splendid field in Japan for iron and steel pipes, particularly for water works and water power.

Consul General Benjamin H. Ridgely, of Mexico City, reports that the Mexican Central Railway has decided to creosote all its railroad ties in the future, and has asked for bids on a creosoting plant with a capacity for treating 100,000 ties monthly.

Consul General Edward H. Ozmun, writing from Constantinople, tells of opportunities presented to American financial and electrical machinery interests in Turkey: In the annual report of this office for the year 1907, attention was called to the necessity of the establishment of an American bank in Constantinople with a view of interesting American capital in concessions granted by the Turkish government for important industrial undertakings, such as railways, mines, electric traction and lighting, and harbor works, all of which would eventually be a natural medium for introducing American plants and machinery.

An American consul in Europe forwards the name of a company there interested in importing American sawmill machinery.

An American consul in Russia forwards the name of a concern there that is interested to hear from American exporters of hardware, machine tools and woodworking machinery.

Bids will be received until October 15, 1908, by the Ministero della Marina, Rome, Italy, for the construction of a new dry dock and dockyard extensions at the Venice arsenal.

An American consular officer in Europe reports that an engineer there would like to hear from American manufacturers of machine tools, especially milling machines.

An American consular officer in Latin America reports that a business man there would like to receive catalogues and quotations on gasoline or alcohol engines for propelling "champanes," or large freight canoes, capable of carrying about ten tons of cargo. A photograph of one of these freight canoes is filed with the Bureau of Manufactures, and will be loaned to interested makers of these engines.

An American consul in Latin America reports the proposed construction of a railway there. He also gives the name of a narrow-gage railroad which uses rather heavy locomotives, and with which company correspondence might be advisable as soon as industrial conditions of the section in question improve.

Consul General L. M. Iddings advises that bids will be received until September 26 by the Ministry of Public Works, Cairo, Egypt, for the construction of a road bridge over the Ismailia canal at Cairo. [Plans and specifications of the structure will be loaned to interested bidders by the Bureau of Manufactures.]

The American legation at Habana, Cuba, has forwarded a copy of the decree granting and describing the proposed improvements to the Habana Electric Railway. This copy will be loaned by the Bureau of Manufactures to interested contractors or dealers in this class of material.

A firm of hardware dealers in the British Isles informs the American consul at the point in question that it would like to become direct importers of nuts and bolts of American make.

The Ministry of Commerce, Budapest, Hungary, will furnish necessary particulars to firms interested in bidding on the construction of the ship canal to connect the Danube and Theiss rivers.

Bids will be received until October 5 by the Isthmian Canal Commission, Washington, D. C., for the supply of lumber, ties, piles, steel rails, angle bars, frogs, repair parts for steam shovels and dredges.

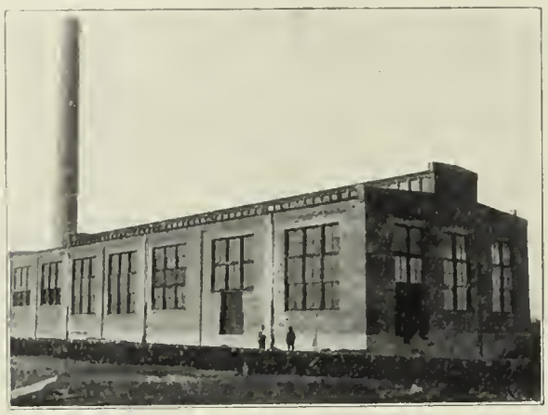
Consul Alfred A. Winslow, of Valparaiso, Chile, advises that the Chilean government has advertised for bids for the construction of the Arica-La Paz Railway, a line of about 335 miles, and also the connecting links in the north and south line known as the "Longitudinal Railway," with changes of the gage of some of the connecting lines. This latter group covers about 300 miles, and starts from a point a short distance north of Valparaiso. Consul Winslow states that the plans, specifications and estimates for these undertakings are filed with the Chilean Legation, Washington, D. C., according to an official announcement by the Chilean government.

Vice-Consul W. Bayard Cutting, Jr., of Milan, submits the

following report on Italian railway appropriations. The law for the construction of new railways in Italy, which has been under discussion for some months, has finally been promulgated. It provides for the expenditure of $107,000,000 during the next sixteen years, and the construction of 992 miles of new roads, as well as the improvements of existing lines. Only $772,000 is appropriated (outside of the regular budget) for the year 1908-9; but in 1909-10 the amount will be $8,357,000; in 1910-11, $13,549,000; in 1911-12, $13,896,000.

ROCK ISLAND IMPROVEMENTS AT EL RENO.

The Rock Island has recently completed modern division shop improvements at El Reno, Okla. The machine shop is composed of steel, brick and concrete, and is 60 by 165 feet. The roundhouse, which has 24 stalls, is modernly equipped, has two drop pits. As this is an important division on the Rock Island in Oklahoma, considerable train and mechanical force is employed at El Reno. These illustrations were taken for the Rock Island's Employes' Magazine, and the one of the new roundhouse and Indian tent afford a splendid illustration of the development of a new country. The tent was on the present site of El Reno and is a type of the progress and civilization of the new country before the steam horse came to herald a new civilization and a new progress. One is the "roundhouse" of a fast departing race and the other is the roundhouse of an advancing race. No better illustration could be secured to contrast the progress of two classes of people—one ancient, useless and passing away, the other modern, indispensible and advancing.



NEW ROCK ISLAND SHOP AT EL RENO, OKLA.

LARGE ORDER FOR CARS.

The Harriman Lines have placed orders for the following equipment: 2,450 fifty-ton box cars, 1.000 fifty-ton flat cars and 450 ballast cars from the American Car & Foundry Company; 170 fifty-ton hopper cars and 490 fifty-ton gondola cars from the Cambria Steel Company; 450 forty-ton stock cars, 50 thirty-ton furniture cars and 70 cabooses from the Standard Steel Car Company. The box cars will be divided among the various lines as follows: Union Pacific, 450; Oregon Railroad & Navigation, 500; Oregon & California, 200; Galveston, Harrisburg & San Antonio, 500; Houston & Texas Central, 300; Oregon & Washington, 500. The flat cars will be divided as follows: Oregon Railroad & Navigation, 50; Oregon & California, 50; Galveston, Harrisburg & San Antonio, 200; Houston, East & West Texas, 300; Cananea, Yaqui River & Pacific, 150; Oregon & Washington, 250. The ballast cars will be divided as follows: Southern Pacific, 150; Central Pacific, 100; Cananea, Yaqui River & Pacific, 100; Oregon & Washington, 100. The hopper cars will be divided as follows: Union Pacific, 120; Oregon & Washington, 50. The gondola cars will be divided among the various lines as follows: Southern Pacific, 25; Central Pacific, 25; Houston & Texas Central, 300; Sonora Railway, 40; Oregon & Washington, 100. The fifty furniture cars are to be used on the Union Pacific, and the stock cars are to be divided as follows: Union Pacific, 50; Oregon Railway & Navigation Company, 100; Galveston, Harrisburg & San Antonio, 200; Oregon & Washington, 100. The cabooses will be divided as follows: Oregon Railroad & Navigation, 10; Oregon & California, 10; Cananea, Yaqui River & Pacific, 25; Sonora Railway, 4; Gila Valley, Globe & Northern, 4; Phoenix & Eastern, 2; Oregon & Washington, 15.

AMONG THE SUPPLY FIRMS.

The Bucyrus Company has increased its capital stock to $1,000,000 from $300,000.

The Independent Pneumatic Tool Company reports an increasing business in their products.

S. E. Gutteridge has been chosen president of the Republic Railway Appliance Company, offices at St. Louis, Mo.

Mr. H. K. Harrison, of St. Paul, Minn., is on the market with a motor driven velocipede car called the Simplex. It is for railway use.

John Havron has been appointed in charge of the Chicago office of the Latrobe Steel & Coupler Company, office in the Old Colony building. He was formerly with the Rogers Locomotive Works.

The Banning Company has issued an interesting book on "The Raymond System of Concrete Piling," which illustrates the Raymond piling system. It also contains the list of leading firms using this system.

EL RENO'S FIRST ROUNDHOUSE. EL RENO'S NEW ROUNDHOUSE, ROCK ISLAND RY.

NEW EQUIPMENT ORDERED.

The Isthmian Canal Commission has contracted for ten switching engines from the H. K. Porter Company of Pittsburg.

The Virginia Railway will soon order thirty Mallet locomotives.

The Monon has ordered 460 box cars and will soon order two cafe cars.

The Santa Fe has ordered 500 refrigerator cars and three passenger cars.

The Dairy Shippers Dispatch has ordered 100 refrigerator cars from the Ryan Car Company.

The Bessemer & Lake Erie has decided to order twenty-four locomotives.

The Union Railroad of Pittsburg has been in the market for ten locomotives.

The American Locomotive Company is building four passenger engines for the Bulgarian State Railways.

The Clark Cast Steel Cement Company, of Shelton, Conn., has been sending out a folder describing its metallic cement. R. T. Oglesby is in charge of the company's Chicago office, at 34 South Clark street.

Mr. Frank T. Hyndman, formerly mechanical superintendent of the New York, New Haven & Hartford Railroad, has been appointed eastern railroad representative of S. F. Bowser & Company, Incorporated, of Fort Wayne, Ind., manufacturers of oil storage systems. Mr. Hyndman takes the place of William A. Pitcher, who met his death May 3 last, in the Aveline hotel fire at Fort Wayne. His experience and extensive acquaintance among railroad men will no doubt serve Mr. Hyndman well in his new capacity.

Adreon Manufacturing Company announces the formation of their company by E. L. Adreon, Jr., D. R. Niederlander and William Miller for the purpose of manufacturing and selling railway supplies. The home office of the company will be in the Security building, St. Louis, and Mr. Miller, vice-president, will

have charge of the Chicago office at No. 300 Western Union building. The company will represent in the southwest: The American Brake Shoe & Foundry Company, Steel Car Forge Company, Pittsburgh Lamp Brass & Glass Company and Acme Pipe Clamp Company, and will manufacture on their own account the Campbell Graphite Lubricator, Security Bell Ringer, Security Back-up Valve, Security Rail Brace and Tie Plate and American Gravity Coupling for locomotive tenders.

The Bettendorf Axle Company, of Davenport, Ia., secured a new factory site several years ago which enabled the company to manufacture all classes of railway equipment, including the building of complete railway cars. This progressive concern has come rapidly to the fore in recent years, and the large plant at Bettendorf, a suburb of Davenport, is being constantly extended and provided more and more with improved machinery to enable the company to take care of its rapidly increasing business. The Bettendorf Axle Company, of Davenport, Ia., has now over 500 000 bolsters in service, and the Bettendorf ideal car truck, with the one-piece frame, is rapidly being adopted by the railway systems of the country. At the present time an order for 2,500 steel underframes for the Chicago, Milwaukee & St. Paul Railway is being turned out at the rate of about twenty-five a day.

WM. H. WOOD'S 1908 HYDRAULIC RIVETER.

An improved outside packed hydraulic riveter, known as the 1908 model, and built by William H. Wood, of Media, Pa., is shown in Fig. 1. Fig. 2 is a detail of the operating mechanism

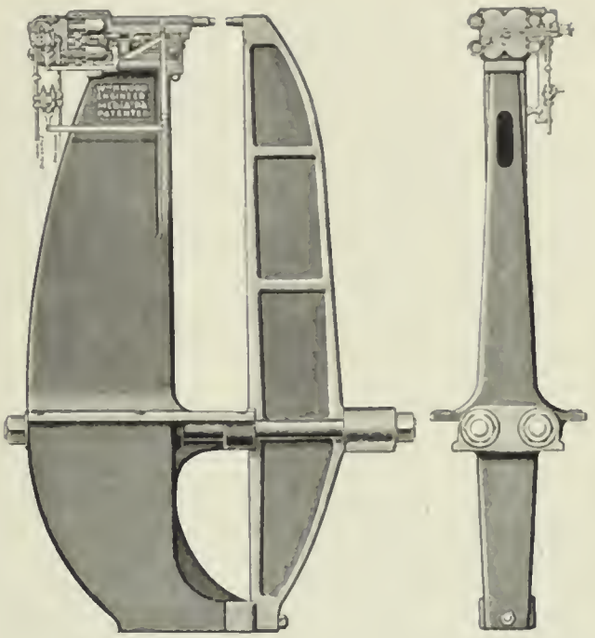


FIG. 1—OUTSIDE PACKED HYDRAULIC RIVETER.

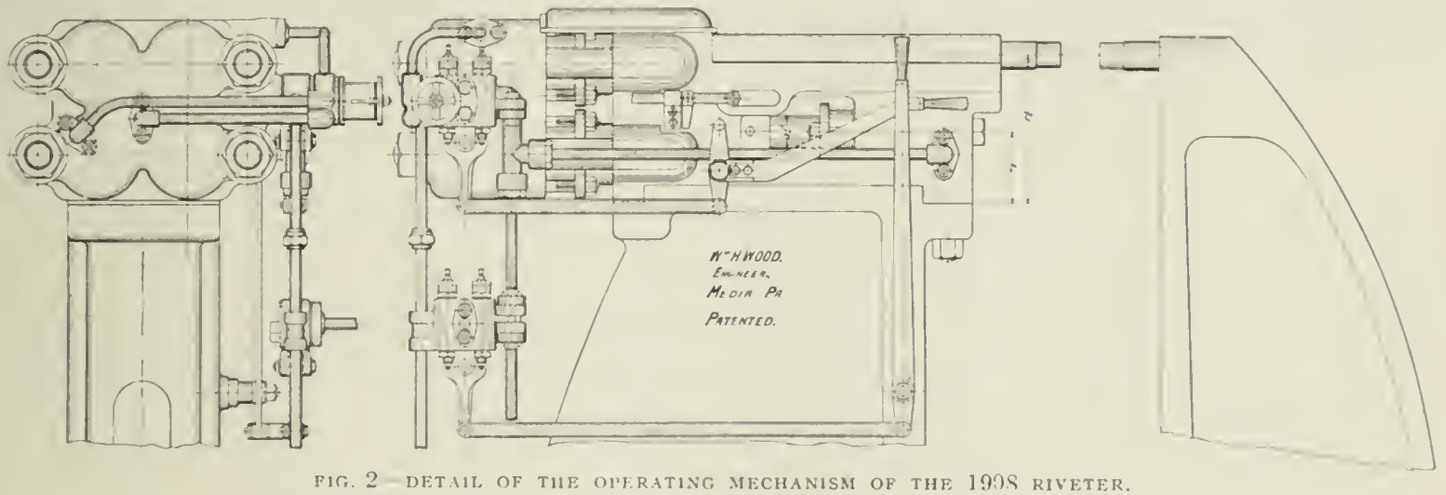


FIG. 2—DETAIL OF THE OPERATING MECHANISM OF THE 1908 RIVETER.

showing the quadruple plungers which are of equal areas and diameters so that they are interchangeable. The riveter is made so that the plungers can be detached from the main part of the head, hence the alignment is maintained. The cylinders are fitted with a distributing valve attached to the balanced main valve for operating them.

This riveter can be worked at 25, 50, 75 or 100 tons pressure. Three pipe connections work the four plungers. When working with 50 tons pressure, the valve is set to the central pipe, which connects with the two opposite cylinders; when working with 25 tons pressure it is set for the top pipe; when working with 75 tons pressure it is set to work through the central and top pipe connections, and when working with 100 tons pressure, the valve is set to work through all three pipe connections. The push back cylinder is arranged in the same form as in the older designs of the builder, and practically balances the driving head. The four plungers are set each 6¾ inches in diameter, and when supplied with fluid at a pressure of 1,500 pounds per square inch will give a total pressure of 100 tons. The stroke of the riveter is adjustable to any amount up to a maximum of 6½ inches.

BOILER CONSTRUCTION.

All boilermakers who wish to get the best work on locomotive boiler construction can secure through the RAILWAY JOURNAL, a copy of Frank B. Kleinhans' new book on "Boiler Construction," a book of over 430 pages, handsomely illustrated and cloth-bound. The book contains 334 clear cuts and five pages of large plates, illustrating different forms of locomotive boilers. There are seventy-five pages devoted to laying out and about fifty pages devoted to tables, rules and other valuable data. We have arranged to secure this book for our readers at cost—$3.00—which will be sent postage paid. It is the most complete and up-to-date work of its kind we have been able to secure for our readers, and we think it is about what every aspiring boilermaker needs. A boilermaker of forty years' experience writes: "I would not take $10 for my copy if I could not replace it." We also take orders for the

WALSCHAERT LOCOMOTIVE VALVE GEAR

This valuable book of 150 pages, finely illustrated, should be in the hands of every railway engineer, fireman and mechanic as well as foreman. It is devoted exclusively to the above system of valve motion. The book contains information that is put forth so simply that anyone can easily understand it. Its illustrations and diagrams alone are worth more than the price, $1.50, also "Locomotive Catechism" for $2.50.

The new shops of the Seaboard Air Line at Jacksonville, Fla., are about completed.

The Monon has secured ground for division shop buildings and roundhouse at Hammond, Ind.

Steam omnibuses are contemplated for use in the streets of London to supplant the old kind.

The Santa Fe has contracted for new shops and storehouse at Cloves, N. M., which are to cost $35,000.

WHAT WOOD PRESERVATION MEANS.

The Department of Agriculture, Forestry Service, has issued "A Primer of Wood Preservation" in which it states that the cost of wood is today a big item to every farmer, every railroad manager, every mine owner—to everyone, in fact, who must use timber where it is likely to decay. How to reduce the expense of fence posts, railroad ties, mine timbers, telegraph poles, and other timbers which must constantly be replaced has become a vital problem. The kinds of timber used for these purposes are becoming scarcer and scarcer, and their prices higher and higher. Long misuse of the forest has brought its sure result. Even with the most efficient management it would be a long time before the supply of the best timbers would increase in quantity or decrease in price.

There are two ways in which the situation may be met. One is to prolong the life of the forest by wise use; the other is to prolong the life of timbers in service by treating them with some preservative. It is the second of these methods of economy which is the subject of this circular. It is easy to see that if the length of time timbers can be used is doubled, only half as much timber will be required as before, and only one-half as much money will need to be spent in the purchase of timber. This is the chief gain in treating wood with preservatives. Yet there is another and important one. Many woods, which for a long time were considered almost worthless, can be treated and made to last as long as the scarcer and more expensive kinds. This, of course, means that the consumer will have the choice of a much greater number of woods than he had before and at less cost. Wood preservation then prolongs the life of timbers in use, reduces their cost and gives the user a wider choice of woods than ever before.

CREOSOTE AND ZINC CHLORID.

In the United States creosote and zinc chlorid are the only preservatives in common use. There are many other patented substances known by various names; but most of them have for their base one or the other of these two preservatives. Creosote is a by-product of coal tar, which is produced at most plants for the manufacture of illuminating gas and at by-product coke-oven plants. This tar is distilled, and during the process the condensed vapors are run into three separate vessels and thus separated into the light oils of coal tar or naphthas, the dead oil of coal tar or creosote, and pitch. Creosote is not a simple substance like zinc chlorid. On the contrary, it contains a large number of constituents of great chemical complexity. Wood tar, when distilled in a similar manner, gives "wood creosote," which like that derived from coal tar, possesses strong antiseptic properties. There is also on the market a so-called creosote, a by-product of water-gas tar or tar manufactured from kerosene oils, which for wood preservation is probably inferior to the true creosote. In general, however, by "creosote" is meant the dead oil of coal tar.

Zinc chlorid is obtained by dissolving metallic zinc in hydrochloric acid. This is further diluted by water before it is used for wood preservation.

MECHANICAL NOTES.

At Pt. Huron, Mich., the Grand Trunk will make extensive improvements to its wood machine shops.

The state of Georgia has passed a law compelling roads to use electric headlights for locomotives on through trains.

The Canadian Pacific will build a brick roundhouse at Minnedosa, Man., to replace the one recently destroyed by fire.

The Missouri Pacific has moved its shops and division point from Horace, Kan., to Eads, Colo., and to Scott City, Kan.

The repair shops of the Wheeling & Lake Erie, at Norwaln, O., were almost completely destroyed by fire on August 23.

The New York Central Lines now require employers in the train service to undergo physical examination and to have eyes tested.

The Georgia & Florida Southern has planned to expend about $200,000 for a large repair plant at some point in Georgia, perhaps Valdosta.

According to press reports the Rock Island proposes to expend about $100,000 on a roundhouse and other terminal improvements at Ft. Worth, Tex.

The International & Great Northern will erect new shops at Taylor, Tex., to replace those recently destroyed by fire. New machinery will be needed also.

The Missouri, Kansas & Texas has made Wagoner, Okla., a division point and will erect there a twenty-four-stall roundhouse and a machine shop 300x420 feet.

It is reported that the Santa Fe will equip its shops at Newton, Kan., with a plant for manufacturing the frogs and crossings for the system east of Albuquerque, N. M.

It is reported that the Blue Island Car and Equipment Company will expend about $300,000 on a plant at Kansas City, Mo., where ground has been secured for the purpose.

The Toledo & Ohio Central railroad has placed a contract with the McMyler Manufacturing Company, Cleveland, O., for a McMyler car dumping plant to be erected in Toledo.

The Kansas City, Mexico & Orient is preparing plans for the main shops of the system to be located at Wichita, Kas. The improvements will include a storehouse, 30x80; oil house, 25x45 feet; main shops, 153x334 feet; power house, 85x90; coach and carpenter shop, 120x200 feet; roundhouse, twenty-one stalls; brick will be the material used.

A report from the general offices of the 'Frisco System states that in order to be ready for heavy traffic the 'Frisco has sent thirty engines to Philadelphia and Pittsburg, ten to Danville, Ill., and forty to Moline, Ill., for repairs so that there may be as little delay as possible in getting them into service. Car repairs have been augmented on the 'Frisco as rapidly as possible in order to be ready for the heavy movement of crops this fall.

Consul Charles Deal, of St. Johns, Quebec, reports that an American peat specialist has secured an option of 450 acres of peat bog near Grande Ligne station, on the Grand Trunk Railway, ten miles from St. Johns, and has begun preparing the placing of machinery, etc., for the experimental production of the peat, which, it is claimed, if properly manufactured, is superior to and a great deal cheaper than coal.

After years of experimenting and fifteen months of exacting tests, the Boston & Maine railroad is installing a block signal system over its entire road that is claimed by the management to be one of the most perfect in the United States. The installation of this is to be completed in 1909, and it is estimated that the cost of the undertaking will exceed $1,000,000. This method is known as the two-arm semaphore system, whereby the warnings given to the locomotive engineer are said to be of the utmost simplicity, and of such a character that mistakes ought to be made practically impossible.

Consul General Norman Hutchinsin, of Bucharest, sends the following report on the use of the residue of petroleum for the running of railway locomotives: Out of the 588 locomotives now working on the railways of Roumania, 427 are using petroleum residue as a combustible. Last year 107,000 tons of petroleum residue were consumed, and the results obtained by its use are considered excellent. It is reported that the Austrian authorities who were here a short time ago to study the question of petroleum as a locomotive combustible have decided to introduce its use on the railways in Galicia.

Announcement is made by the National Battery Company of Buffalo that the receivership, under which this company has been operating since last February, was terminated August 19. All claims against the National Battery Company have been settled and the entire property has been restored to the stockholders. It is stated that full control of the reorganized company has been secured by the Cutler-Hammar Manufacturing Company, of Milwaukee, well-known as makers of battery charging rheostats and other electric controlling devices. The plant of the National Battery Company will remain at Buffalo, but the business will be conducted under new management and with ample capital.

HEAVY ENGINES FOR HARRIMAN LINES.

The Brooks Works of the American Locomotive Company has recently completed an order of 24 ten-wheel locomotives for the Harriman Lines, which were part of a total of 125 locomotives under order with this company for that system.

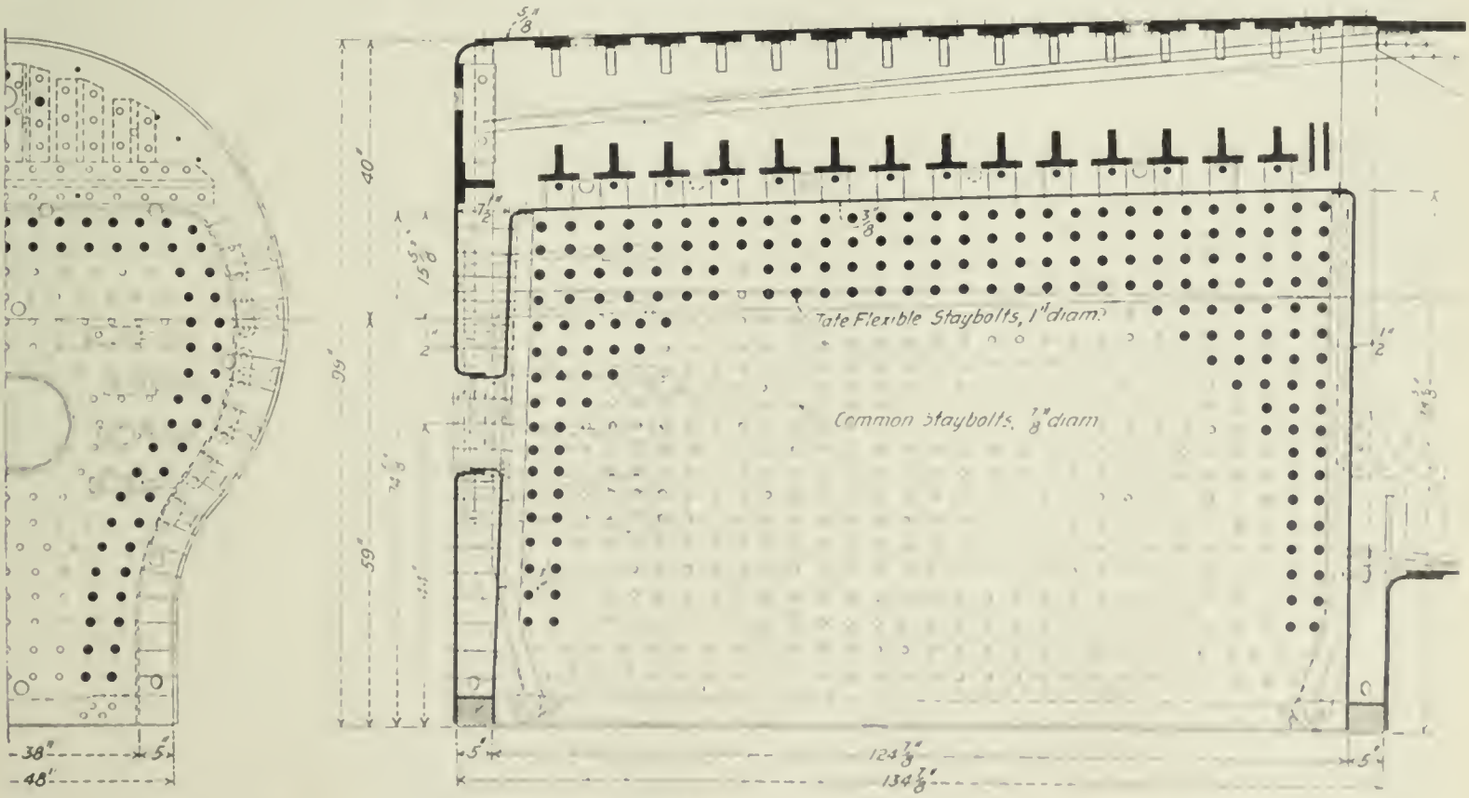
The order included 43 consolidations, 30 moguls, 10 Atlantic type, 18 switchers and 24 ten-wheelers. Of the ten-wheel engines eighteen were equipped for burning oil and six consigned to the Oregon Railroad and Navigation Company were arranged for burning coal. Five of the eighteen oil-burning engines were consigned to the Central Pacific Company, 6 to the Galveston, Harrisburg & San Antonio Railway, 2 to the Oregon & California Railway, and 5 to the Southern Pacific Company, one of which is illustrated herewith.

These engines are intended for passenger service and were built to drawings and specifications furnished by the railroad company and represent the design which has been adopted as standard for this type of engine for all the Harriman Lines. In working order they have a total weight of 207,000 pounds, which places them among the heaviest engines of this type ever built by this company. Of this total weight 162,000 pounds, or 78.6, is carried on the driving wheels. The cylinders are 22 inches in diameter by 28 inches in stroke, and, with a boiler pressure of 190 pounds and driving wheels 63 inches in diameter, these engines will develop a maximum tractive effort of 34,740 pounds. This gives a factor of adhesion of 4.68.

The cylinders are equipped with piston valves having a maximum travel of 6 inches and 1-inch steam lap and 1-16 inch exhaust clearance. The valves are actuated by the Stephenson shifting link motion and are set for 1-32 inch lead in full gear. The main frames are of cast steel with double front rails and are 4½ inches wide.

The boiler is of the wagon type crown bar type, with vertical backhead and throat sheet. The barrel is built up of three courses, the outside diameter of the first course being 72 inches. It contains 355 tubes, 2 inches in diameter, spaced so as to provide ⅞-inch bridges in accordance with the standard practice of the Harriman lines. The total heating surface of the boiler is 2,994 square feet, of which the tubes contribute 2,788 square feet and the fire box the remainder. The fire box is 124 inches and 37¼ inches wide. The crown sheet is supported by T iron crown bars attached by sling stays to curved T irons riveted to the roof. The crown and sides of the fire box are in one sheet, as are also the sides and roof of the boiler. Ample water spaces are provided around the fire box, the mud ring being 5 inches wide on all

ONE OF THE HEAVY PASSENGER ENGINES ORDERED FOR THE SOUTHERN PACIFIC.



REAR ELEVATION OF BOILER. LONGITUDINAL SECTION OF FIREBOX, 10-WHEEL LOCOMOTIVE FOR SOUTHERN PACIFIC

sides and the water space increasing in width at the crown sheet.

The tender is of the Vanderbilt type with cylindrical tank having a water capacity of 7,000 gallons. The oil for fuel is carried in a tank located in the coal space of the tender and having a capacity of 2,940 gallons. The tender trucks are of the Andrews cast steel side frame type; the wheels being of rolled steel 33½ inches in diameter. The principal ratios of the design are given below:

Weight on drivers÷tractive effort	4.68
Total weight÷tractive effort	5.95
Tractive effort×chain drivers÷heating surface	.731.
Total heating surface÷grate area	93.2
Fire box heating surface÷total heat surface (per cent)	6.8
Weight on drivers÷total heating surface	54.3
Total weight÷total heating surface	69.1
Volume both cylinders cu. ft	12.32
Total heating surface÷vol. cylinders	.243.
Grate area÷vol. cylinders	2.6

TRAFFIC AND FINANCE.

The railroads of Oregon have been assessed by the tax commissioners for $119,525,433, which does not include the Tacoma Eastern.

Last month two men pleaded guilty and were fined in the Federal court at Lynchburg, Va., for using railroad passes in violation of the law.

Nearly all the roads of Mexico have abolished the third-class passenger service, claiming that travel in that country did not justify three classes of passenger service.

A body of commercial travelers in New York state has petitioned the Public Service Commission of that state to compel railroads to publish in the daily papers (morning and evening) the arrival and departure of all passenger trains.

The Interstate Commerce Commission has extended the time until October 1, within which transcontinental roads and steamships plying to Cuba shall publish their passenger and freight rates, upon petition of the roads and steamship lines.

The new rate law has forced the Chicago & Northwestern to procure 440 tariff cabinets for its local stations, as receptacles for documents subject to public inspection. Such an outlay will cost this one road about $50,000, which is like a wasteful expense.

The General Baggage Agents of Texas held a convention at Austin, Tex., on September 9, and elected for president of the Association, Mr. I. N. Turner, of the San Antonio & Texas Pacific, at San Antonio, Tex., and for secretary, S. R. G. Gordon, of the Santa Fe, at Galveston.

The Interstate Commerce Commission has issued an order, effective October 15, reducing the switching charges for stock to the Chicago stock yards from $2.00 to $1.00 per car. The cattle men of the country have been fighting the $2.00 per car rate for the past twelve or fifteen years.

According to reports from Mexico City, the Mexican government will handle all express business over the lines of which the government has controlling interest, which will end the term with the Wells Fargo Company on the Mexican Central when the present contract expires December 31, 1908.

At the convention of the American Association of Traveling Passenger Agents, held at Seattle in September last, the following resolution was passed: "Whereas, In view of the present existing conditions, and to prevent further business depression and to protect the interest of 1,700,000 railroad employes, it is the unanimous opinion of the members of the American Association of Traveling Passenger Agents in convention assembled, that freight rates should be increased. Therefore be it Resolved, That each member present the railroad side of the question to the public and endeavor to secure their co-operation in bringing about prosperity to all."

Some versatile writer in the New York Herald has attempted to give us a bit of railroad history as it will read in the future. He makes some prophesies that read as though based upon a hope instead of upon conditions. Here is a paragraph from his story, which deals almost entirely with Mr. Harriman and his future control:

"One-half of the railroad mileage of the United States has been Harrimanized, and it seems as certain as anything of this sort can be called certain, that the next ten years will see the bulk of the remaining half Harrimanized also. He personifies the great force that is transforming the railroad situation in America. What is startling in this connection is that there is no other man in the country who measures up with Harriman or can be considered as his successor or rival. No other men loom big in comparison on the railroad map. As a matter of fact there never was a time when great railroad men were so scarce. But that may be explained as only a result of the evolution in the transportation fields, finance taking the place of service or training in the operating branches. The railroad president today is only a hired hand, who gets his orders from the chairman of the board, just as the conductor gets his orders from the train dispatcher."

No one questions the power and ability of Mr. Harriman, but we have to admit that there are other strong factors in the railway world who have been railway builders as well as shrewd financiers. Furthermore, a man's ability is limited, though his ambitions may not be. All ambitious men like to and often try to accomplish more than their ability will allow, to say nothing of the force of the law.

Consul Alfred A. Winslow of Valparaiso reports that the management of the state railways of Chile has advertised for bids for the construction of an electric plant at San Eugenio, comprising the building and the machinery for the production of motor force in the shops and the lighting of the stations, with a capacity of 900 kilowatts, divided into three units of 300 each. No proposals will be considered that are not made upon the form that will be found in duplicate on the leaf of specifications furnished free of charge by the engineer of the technical office upon a deposit of 60 pesos with the central cashier of the service. The work must be executed in conformity with these specifications. At the time of receiving the specifications the interested party or his representatives will sign the volume kept for this purpose in the central office, giving their name and the domicile of the house they represent. The management reserves the right to reject all proposals, to accept any part of any of them, or to accept the one most convenient, even though it is not the lowest. The proposals will be opened in the presence of the interested parties Monday, November 2, 1908, at 3 p. m., in the office of the director-general of the state railways, Santiago, Chile.

Consul-General George E. Anderson of Rio de Janeiro, Brazil, reports that the federal government of Brazil has work now in hand, contracts for which have been approved, with preparations for work now in progress, on the improvement of five of its principal ports. The estimated cost of these improvements will approximate $160,000,000. It is also preparing for work in the way of surveys, preliminary estimates, and financing operations for work amounting to fully half that sum, in addition to the work now undertaken. A complete copy of the report on this subject, covering eight typewritten pages, may be obtained from the Bureau of Manufactures.

A request has been received at an American consulate in a city of western Europe from a local business man who desires to be put in touch with the American manufacturers or exporters of the following goods: Automobiles, 6-8-10 horsepower; steel for switch crossings; drills, hardware, motor boats, gasoline engines and motors, narrow-gauge locomotives, rosin, celluloid sheets, and dentists' supplies. The merchant states that he will furnish satisfactory references.

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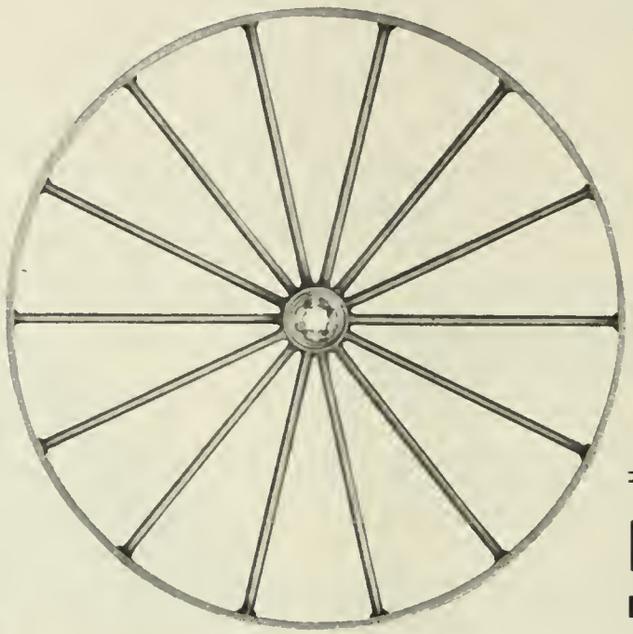

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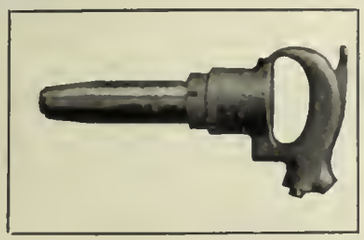

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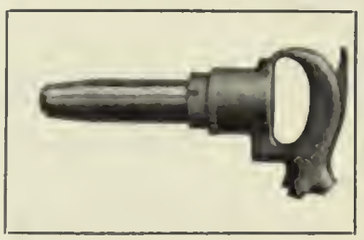

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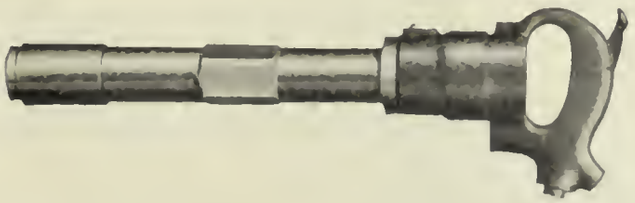

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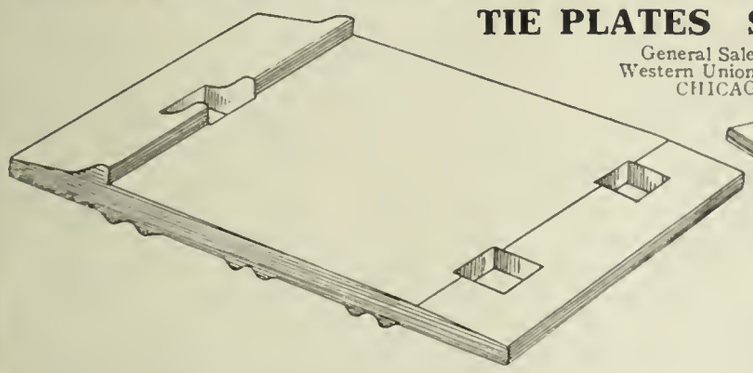

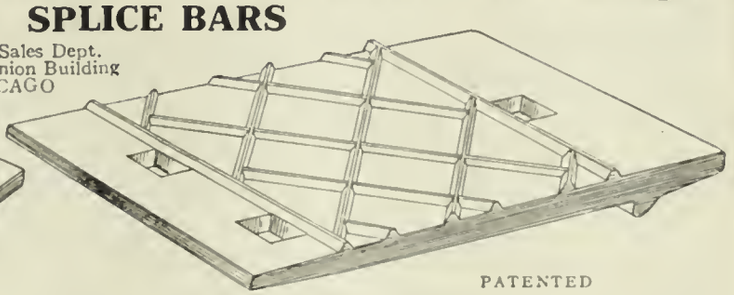

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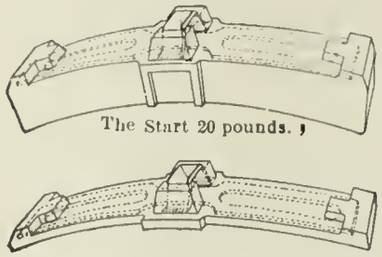

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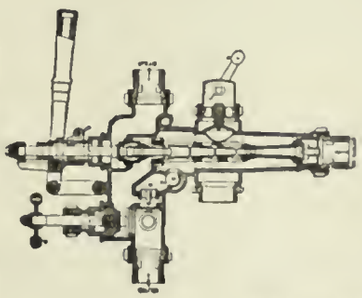

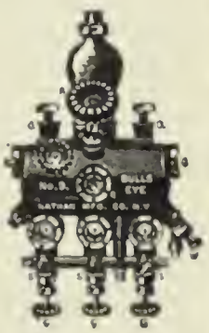

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Entered as Second-Class Matter October 22, 1906, at the Post Office at Chicago, Illinois, under Act of March 3, 1879.

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IMPORTANT NOTICE.

Owing to a change being made in the place of printing the RAILWAY JOURNAL, the paper is unavoidably late this month. The office of the publication is at 506 Royal Insurance building and all matters pertaining to the paper and its business should be addressed to the RAILWAY JOURNAL at the above address.

In the east there has been speculation as to who are the owners of the Boston & Maine since the New York, New Haven & Hartford disposed of its holdings last June. The sale seems to have been made to John L. Billard, one of the directors of the Boston & Maine, and the belief now is that J. P. Morgan & Co. are backing Mr. Billard. This seems to be the impression at Boston, anyway. What effect this will have on the dissolution of the two roads is hardly known, as Mr. Morgan is identified with the New Haven road, too.

Unfortunately there are not many roads that can show an increase in their earnings for the past fiscal year over the year before, the panic having cut receipts quite materially. One of the roads fortunate enough to show increased earnings for the past year is the Colorado & Southern. The increase for the last year was only slight, but it is a creditable showing just the same. The net income for that period was $2,171,903.32, being an increase of $80,045.57, or about 3.83 per cent. This road has made extensive improvements also during the past year.

To ascertain about how much timber there is in this country, the national conservation commission has caused the first comprehensive attempt at a census of the standing timber in the United States ever undertaken. It is not the intention of the commission to have every tree counted, but close estimates are to be made by experts. As a result guesses are to be made as to the amount of standing timber. The estimates now range from 822,682 million to 2,000 billion board feet. In the opinion of the forest service, the most carefully prepared estimates yet made are those by Henry Gannett, published by the twelfth census in 1900. These placed the total stumpage at 1,390 billion board feet. Mr. Gannett, it so happens, has been chosen by the president to compile all the information gathered for the commission, and with his previous acquaintance with the subject of forestry he is at work now enlarging the knowledge of forest areas at present available. The importance of this census lies largely in the fact that it will give an accurate basis for computing how long our timber supplies will last.

Elsewhere in this issue will be found a portion of the address of Mr. T. P. Shonts, delivered on October 9, before the annual convention of the Deep Waterway Association, held in Chicago. Anyone who entertained the idea that the railroad officials are opposed to the development of the proposed lakes-to-the-gulf deep waterway will be surprised in reading Mr. Shonts' address. He stated in words plain and unequivocal that he is an old advocate of the proposition and proceeded to demonstrate whereby the roads will be benefitted by the development of this canal transportation. He called special attention to the fact that roads need better terminal facilities and that

the more harbors there are the easier it is for the roads to secure the terminals. The remarks made by Mr. Shonts relative to the operation of roads through commissions—by men not experienced in the science of railroading—deserve to be seriously studied by the American voter, as well as by the law maker. The president of the Chicago & Alton believed that the tide has begun to turn in favor of sensible railway legislation, and he has hopes that justice will finally triumph. His address was an able one and we regret that space would not permit us to publish all of it.

The decline in traffic has not been confined to railway business in this country, according to authentic reports from foreign countries. The United States consul at Antwerp sends a report that is anything but flattering. The whole shipping world is affected. As to the conditions among the steamship lines, he states that the greater part of the world's tonnage for several months has remained unproductive. The home ports of the great ocean liners are filled with steamers lying idle, and even at Antwerp, which is only a port of call, more than thirty big steamers are laid up. Only recently a large steamer, belonging to one of the far east lines, whose expenses amount to $200 a day, was obliged to wait at Antwerp three days in order to find 100 tons of cargo. Passenger steamers coming from South America to Europe have been obliged to pay for the privilege of carrying grain in order to get ballast. Freights to India, which were formerly 15 to 20 shillings ($3.65 to $4.86) a ton, have now been reduced to 5 to 7 shillings ($1.22 to $1.70). Transportation from Antwerp to the Scandinavian ports, which formerly was a flourishing business, has become insignificant, while the far east, for which steamers formerly loaded large cargoes, imports scarcely enough to warrant the vessels calling at European ports. Similar conditions prevail in the emigration business. In July, 1907, the Red Star Line transported from Antwerp to New York 5,170 third-class passengers, while last July the same company carried only 1,510. The outlook for better conditions at the beginning of 1909, however, seems good.

THE FUTURE OF RAIL AND WATER TRANSPORTATION IN THE UNITED STATES.

(T. P. Shonts Before the Deep Waterway Convention at Chicago, October 9.)

It is a great pleasure to be here today and I am glad of the opportunity to give you my views on a subject in which we are all deeply interested—The Future of Rail and Water Transportation in the United States. I am no recent convert to the Deep Waterway Cause. I have believed in it and favored it from the first. When I had the pleasure of addressing the Chicago Commercial Club nearly two years ago, I urged that the enterprise be given greater attention because of the changing conditions, due to the construction of the Panama canal.

The widening and deepening of the waterway built by nature between the Lakes and the Gulf has long since ceased to be a local or sectional question. It has become a matter of national, and in fact international, importance on account of the effect which it promises to have on our commerce with other countries. It is therefore entitled to the active support of every patriotic American. Not satisfied with being the granary of the world, the United States has recently undertaken to become its workshop. Great as has been our gain in population, we have grown more rapidly in the production of manufactures and if we are to continue to advance we will be compelled to engage in the wars which are to come—wars not for the acquisition of territory, but to secure supremacy in international commerce. The country which has the best transportation facilities will have a distinct advantage in such contests and the completion of the waterway in which you are interested will go far towards giving this country that advantage. The construction of a great inland harbor reaching from the Gulf to the Great Lakes will not only develop the whole Mississippi Valley until it becomes as great in manufacture as it is in agriculture, but it will aid in the further progress of the entire nation.

With the completion of its sister enterprise, the Panama canal, the markets of Central and South America, which have been too long overlooked, will be brought to the very heart of our country. Ships will be able to load in Chicago, St.

T. P. SHONTS.

Louis, New Orleans, or intermediate points and deliver the cargo along both coasts of Central and South America without breaking bulk before vessels from European countries have more than fairly started on their journey. Nature and the Monroe Doctrine have given us an advantage in these markets which the people there appreciate. We should therefore avail ourselves of their friendly disposition before the merchants of Europe, who also recognize the situation and are seeking to counteract our advantages by extending and cementing their relations with these countries, become so firmly entrenched that it will require great effort to drive them out and secure that share of the trade which properly should be ours.

I think I fairly represent the general sentiment of their officers when I say that the railroads of the country do not look upon your enterprise with unfriendly eyes. I know that, as president of the Chicago & Alton Railroad, one of whose main lines reaching from Chicago to St. Louis will be paralleled its entire distance by the construction of your deep waterway, I can truthfully say that our company will cordially welcome the early completion of your great undertaking. I favor it and we all favor it because we realize that this work when finished will make it possible, as nothing else short of the expenditure of appalling sums of money could, for us to handle

the commerce which is certain to follow the return and firm establishment of national prosperity.

Difficult to Provide Terminals.

The greatest obstacle that steam railroads have to overcome if they are permitted to operate and expand as the traffic of the country grows, is the providing of adequate terminals. It is an easy matter to lay rails between important centers and to run trains over them. The difficulty is to provide terminals sufficiently large to permit the expeditious disposition of the traffic at terminal points. The growth of great cities and the consequent enormous increase in real estate values have made terminal property, to the extent that conditions demand, almost prohibitive, so that only the very richest railroads, and those whose credit is most firmly established, can hope to provide adequate facilities and reasonable conveniences for the public. In New York, Boston, Philadelphia, and Baltimore the situation in this respect has become so serious that the bulk of the grain business has been driven to Canadian ports where land is cheaper and facilities can be provided at more reasonable expense. The fact is, this problem has attained such magnitude that some profound students of transportation affairs are already discussing the feasibility of having the government provide the terminal facilities for the railroads of the country in order to protect American commerce—but this is the solution least to be desired because it would be the first actual step towards government ownership of railroads. The opening of this waterway, however, would greatly aid in the solution of this question because every point of the 1,000 mile harbor, stretching from Chicago to New Orleans would be accessible and feasible for the construction of great terminal facilities so that the trunk lines of the east and west could converge and interchange their traffic and load into ships which would serve Europe, Mexico, and the Central American States, the east coast of South America, and, through the Panama canal, when it is completed, the west coast of North and South America and the Far East. It will give the Mississippi Valley—the vast territory between the Rockies and the Alleghenies—a system of outlets for its products that ought to take care of the future needs for centuries to come. It will not injure the cities and seaports which are now the gateways of our export trade, nor will it affect the railroads in any other way than to aid them in developing the country. The effect of the Erie canal and other waterways has not been to compete with the railroads but to supplement them, and the deep waterway will be the greatest achievement in this direction which has ever been accomplished. With a population of 90,000,000 the railroads now have all the business they can well handle under normal conditions. It is at times, chiefly on account of the congestion at terminals, almost impossible for them to transport the traffic that comes to them without delays which may well cause complaint from the shipper. With this condition prevailing in times of ordinary prosperity, what will the situation be when our population is doubled? The situation as it now stands is serious. However, the construction of this deep waterway, by furnishing an easy outlet for the present and prospective products of the great middle west will remove the danger which now threatens of a traffic congestion that would affect practically every industry in the land.

Canals Help Develop Business.

The history of transportation by rail and water in the United States shows that the traffic created by the railroad has grown more rapidly than it has been possible to extend the lines of transportation on land, and that because of the governing conditions the railroads have absorbed the higher class of freight, while the cheaper classes which could bear only a low tariff have been turned over to the canals. This cheaper class of freight while not in itself profitable to the railroads must be transported to aid in the development of communities and industries, which, in turn, will produce an increased higher grade tonnage for the railroads. For instance, the construction of this canal will convert Kansas into a great cement-making state. That state has great beds of rock that make first-class cement but, on account of the long railroad haul and the fact that cement is a cheap product which cannot stand railroad charges for any considerable distance this industry has never been developed to anything like its fullest extent.

In the construction of the Panama canal, as I happen to know from personal experience, the cement makers of Kansas were unable to successfully compete with the manufacturers in the east who were close to the seaboard and those of Europe, who were similarly situated. With the completion of this deep waterway, however, Kansas will be able profitably to market millions of tons of cement where it now sells only hundreds of tons. The railroads will not profit materially by the short haul to the canal, but the building up of the cement-making industry will encourage a vast line of other industries which will furnish high-class and remunerative traffic to the railroads. This is only one illustration of the manner in which canals not only aid the railroads, but assist in the development of the whole country. There will always be a large tonnage which the railroads cannot handle so far as the long haul is concerned at sufficiently low cost to enable the industries to thrive, and, on the other hand, there will be, in normal times, enough traffic which demands quicker service and can afford to pay more remunerative rates to keep the land lines of transportation busy. The steam railroad is, and from the nature of things must always be the backbone of all transportation. It is the growth of the steam railroad that has made possible the marvelous development of our country. The canal aids the railroad in our national development, but it cannot alone carry the burdens of commerce. The railroads carry traffic to the canals and haul it away from them. If there is no freight for the railroads to carry, the bosoms of the canals will be unruffled. It is impossible, therefore, to strike a blow at the railroads without hitting the canals, and, to go further with a plain statement of fact, without making the impact felt to the uttermost limits of the nation.

Opposes Government Operation Through Commissions.

What is the situation today respecting our American railroads? Are these great arteries of trade whose construction originally made possible the development of our inland commerce in position to respond to the increasing demands which are continually being made upon them? Is this most representative of all American industries, which normally gives direct employment to 1,600,000 men, and indirectly gives employment to as many more through the industrial concerns which have no market except the railroads—is this industry, which, in normal times, purchases itself 25 per cent of all the manufactured products of our country, and handles every day almost every item which enters into the daily life of our 90,000,000 of citizens, now in condition to properly perform the service necessary to insure our country's further growth? Does the daring spirit which inspired our pioneer railroad builders, the spirit which assumed the risk, conceived the processes, and defied the obstacles which beset the laying of the wire across the sea and the rail across the plains still exist? Have we as much of that alert, resourceful and self-confident individualism, which has been our greatest national asset today as formerly? Do the coffers of the 2,000,000 American investors in American railroad securities open as readily as in the past to provide the funds necessary to keep our railroad development abreast of our traffic requirements? You gentlemen who are all deeply interested in the transportation affairs of the nation and are consequently familiar with the true situation, at once answer "No" to each of the questions just propounded. But what is the reason for all this? What is it that has taken the heart out of our railroad managers—that has chilled their laudable ambitions, that has frightened away our financial support, that has shadowed our horizon on every side, that has made us cease to act, and only wait? The answer is clear—it is the fear of government operation of our roads through commissions who have no financial responsibility, which has produced these results. The idea of operation through commissions is the illogical outcome of public measures at first preventive and justified, but which, with the swing of the pendulum, have become a dangerous interference in matters which have their private as well as public concern and which, if extended and continued, will portend disaster. And so I beg leave this morning before this audience of competent judges to state the case, as a business man talking to business men, or, better still, as an American citizen talking to his fellow citizens,—to state the case calmly and dispassionately in behalf of the commercial independence of our American railroads.

I think we will all agree that our future as a nation depends more than any other one thing on the character, extent and cost of the service our transportation lines render and that we have already shown that the interests of the rail and water lines are inseparably linked together so that whatever injures the one will to a greater or less extent cripple the other.

There are many less idle cars than there were a few months ago, but no one is anticipating a serious car shortage this season.

THE "ALL-RED ROUTE"—THE GRAND TRUNK PACIFIC.

By H. R. Charlton.

ARTICLE II.

While as stated in the foregoing the main line of the eastern division will be leased to the company, the branches of this division will be constructed and owned by the company and a subsidy has been granted by the provincial government of Ontario in aid of the construction of the branch from the main line southerly to Fort William and Port Arthur, which is known as the Lake Superior branch, of $2,000 per mile cash, and six thousand acres of land per mile. The branch, which is projected from the main line of the eastern division to North Bay or Gravenhurst, will also be an important one as forming the connection between the new Transcontinental Railway and the present Grand Trunk Railway System. The same may also be said of the projected branch from the main line of the eastern division to Montreal. These lines will traverse new country and provide transportation facilities for the location of industries adjacent to the extensive water powers that abound in this section.

SITE OF PRINCE RUPERT, B. C., GRAND TRUNK PACIFIC RAILWAY.

Western Division.

Owing to the physical character of the country, the western division is subdivided into the Prairie section and the Mountain section, the former extending from Winnipeg via Edmonton to Wolf Creek, Alberta, a distance of about 916 miles, and the latter, as its name indicates, being the section over the mountains from Wolf Creek, Alberta, to Prince Rupert, British Columbia, about 840 miles. This division will be built at the cost of the company, the government aiding by guaranteeing first mortgage bonds of the company, principal and interest, for fifty years, to the extent of $13,000 per mile on the prairie section, and for three-quarters of whatever the cost per mile may be of the mountain section, the Grand Trunk Railway Company of Canada guaranteeing an issue of bonds of the Grand Trunk Pacific Company, principal and interest, for fifty years, to provide the remainder of the cost of construction. The company is to pay the interest on the bonds issued on the prairie section and guaranteed by the government, from the date of the completion of the road (the interest during construction being provided for in the cost of construction), but the government will pay the interest on the bonds guaranteed by it on the mountain section for the first seven years after the completion of the line, with no recourse on the company for the interest so paid. Thereafter the company will pay the interest on the bonds guaranteed by the government, with the exception, however, that should default be made by the company at any time during the next succeeding three years, the government will pay the interest, the company continuing in full possession of the property, and at the expiration of ten years after the completion of the mountain section any default of interest which may have been made by the company and paid by the government will be capitalized and be repayable by the company to the government. In the event of default being made by the company in the payment of interest guaranteed by the government during the terms that the company is liable therefor, the government shall not have recourse on the company until such default shall be equal to the sum of five years of such interest as the company is not relieved from the payment of or permitted to defer or capitalize, whereupon the remedy of the government shall be the appointing of a manager, with the concurrence of the company, to operate the western division and to collect and distribute the net earnings pari passu between the

holders of the bonds guaranteed by the government and the holders of the bonds guaranteed by the Grand Trunk Company, in the proportion of 75 per cent of such earnings to the holders of the government guaranteed bonds and 25 per cent to the holders of the bonds of this division guaranteed by the Grand Trunk Company.

The country through which the prairie section of the railway will pass contains land now known to be well adapted for the growing of wheat, which in extent is four times the wheat growing area of the United States, and is the great agricultural belt of the Northwest. This land, which is now being rapidly taken up by settlers, produces rich crops the first year of cultivation and will furnish a large traffic for the railway as rapidly as it can be extended, therefore amply warranting the company in assuming the payment of the interest charges on the cost of construction from the beginning. The mountain section, however, passing through the mineral deposits, will require a little longer time for development, and, as stated, the government has therefore assumed the payment of the interest charges under its guarantee of three-quarters of the cost of construction for the first seven years after completion (waiving their right of recourse on the company in the event of default for an additional three years) and allowing for the period of construction, which is fixed at seven years, not until 1910 will the company be required to assume this liability beyond the interest charges on the one-quarter of the cost of construction under the guarantee of the Grand Trunk Railway Company of Canada.

HARBOR OF PRINCE RUPERT, B. C., GRAND TRUNK PACIFIC RAILWAY.

ARE RAILROADS MAKING TOO MUCH MONEY?

One of the most interesting addresses made in public, viewed from the standpoint of commercial interests, was delivered by Mr. J. C. Stubb, vice-president and traffic director of the Union Pacific and Southern Pacific, before the Trans-Mississippi Commercial Congress in October, on "The Relations of the Railroads to Trans-Mississippi Territory." Mr. Stubbs spoke briefly of the roads under the management of Mr. Harriman as representing the "largest investment of money of any productive enterprise in all the territory within the United States lying west of the Mississippi river. They are also the largest individual employers of labor." Mr. Stubbs expressed his belief that the majority of the people do not appreciate the true significance of the relations railroad properties have to the public weal. The majority of citizens, says Mr. Stubbs, who are served by the railroads indirectly, do not apprehend the interdependence or right relations of the public and the carrier. In speaking of government regulation Mr. Stubbs said among other things:

> It has seemed to me that the men are too numerous who do not understand, or who refuse to recognize, that railroads are property, entitled to the protection as well as being subject to the restraints of the law. Under our form of government, supervision and regulation by law might be extended to any other industrial pursuit if the people so willed it. It has been applied to railroads because of their monopolistic nature, and the well-proven fact that transportation in this country is absolutely necessary to the well-being, the industrial life, of the people. Hence these agencies of transportation must be restrained and regulated lest the power they naturally exercise be used to the hurt rather than the help of the people. But fundamentally the right of supervision and regulation does not go to the extent of practical management, nor should it limit the rate of profit below that which other investments of labor, skill and money commonly yield.
>
> I have in mind the visit of a state railroad commissioner to the general office of a small railroad many hundreds of miles from this city. After going over the accounts of the railroad company and finding them O. K. he pointed to the balance sheet and said: "You are making too much money; too much money." That illustrates the kind of supervision that I fear is becoming too popular and the kind of regulation which seems to me may deprive railroads of protection of their common property rights.

Such agencies as this congress can, and I hope will, be effective as a means of disseminating the truth concerning the carriers' rights and needs as well as the rights and demands of the people.

The territory represented by this congress is the larger part, and daily is becoming a more important part of our country. Its area is over 2,000,000 square miles—about 60 per cent of the area of the United States, exclusive of Alaska and the insular possessions. Its growth in wealth, in population, in all the products of civilization, furnishes a remarkable chapter in history. Such conventions as this show the desire and purpose of the people of the Trans-Mississippi territory to do nothing to retard and to leave nothing undone that will promote its further progress.

Favors Coöperation.

It goes without saying that our endeavors must be honest. I firmly believe that they must be coöperative. In using the term "coöperative" I have in mind especially the relations of the railroads with the general public, the essential interdependence of which I have just spoken. That interdependence does not exclude the ordinary features of exchange—buying and selling. It should not prevent fair competition, nor should it forbid curbing by law the unjust use of power by capital or by labor, by corporations or by individuals; but it does suggest to a wise, a just and a generous public sentiment the inexpediency of making any person or class of persons, or any business association of persons—in firms or in corporations—the football of what is called politics, and it does forbid treating any such as a sort of industrial Frankenstein. Now please do not mistake the intent or spirit of that remark. It is not a complaint; not even a protest. It is simply the thought of one whose employment, and ambition, and pride is inwrought with what is understood to be the object of this congress.

The several sides of a square are equal. A deal implies at least two parties. A "square deal" means that the deal must be fair to both, or each and every party to it. That is all you want; that is all we shall ever contend for as railroad men dealing with the public.

In his concluding remarks Mr. Stubbs called attention to the fact that railway stockholders have usually been disappointed by the returns they have received on money invested. He called attention to the fact that other enterprises had paid good dividends, while the average net returns upon railroads was only 4 per cent. Manufacturers average about 15 per cent. More railroads are needed in the West, says Mr. Stubbs, but "capital has become chary of railroad investments" for reasons which nearly every one understands. In conclusion Mr. Stubbs said:

Gentlemen: We want, we need—the continuous growth and improvement of this wonderfully promising territory demands more railroads and enlarged and improved facilities in the existing roads. The expenditures necessary to these ends are capital expenditures. The needed money will be obtainable when confidence in the productiveness of railroad investments is restored; when coöperation and good will is manifest in the relations of the people and the carrier; when it is promoted by the individual citizen; when it so pervades the public mind as to find expression through legislative bodies; when it dominates the purpose of those charged with the investment of the enormous sums needed for such great works, and when it energizes and illuminates the spirit of those charged with the management of the railroads.

When these conditions prevail the needed money will be forthcoming, the work will be prosecuted and the wheels of industry begin to turn everywhere. Then there will be no idle laboring men on the streets, no salesmen off on long vacations, nor will there be anxious minds in the counting room. The full dinner pail will be the escutcheon on the door of the cottage and palace.

Some may say that I am optimistic. Well, that is true. I am looking for the substance—not the hole in the doughnut. "Faith is the substance of things hoped for; the evidence of things unseen." This is a divine philosophy that may well be applied to human affairs, and nowhere, to my mind, more productively of the things we desire and hope for than to the western half of Uncle Sam's territory.

ELECTRIC RAILWAY GETTING BUSINESS.

The growth of the electric roads in this country is one of the most wonderful commercial propositions that has commanded the attention of the investor and business man since the rapid development of steam roads of some fifteen or twenty years ago. An interurban line of today is getting to be more than a local affair—it is an interstate traffic proposition, and that traffic means more than passenger business; the express and freight business is producing earnings for electric lines. Some predict that this element of transportation is only in its infancy.

At the recent convention of the American Street and Interurban Railway Association, held at Atlantic City, it was given out that some of the interurban lines are maintaining schools to educate men for practical service on the roads, anticipating continued growth of roads and development of service. As to the plans for increasing their traffic, the situation can be best understood by quoting Mr. E. R. Stephens, of Springfield, Illinois, traffic manager of a large electric system, who is reported in the daily press as saying:

Freight receipts are going to be of vastly more importance to electric lines in the future. We have found advertising in newspapers and folders the best means of booming our passenger business. We are going to advertise our freight service in future because we find it is growing in the middle west, while steam roads are losing ground.

At the rate business has been growing in this country the past ten or twelve years, if it will continue, there will be plenty of traffic for all the roads. Every system will help to develop new forms of industries and encourage the cultivation of new lands, all of which means more traffic.

ELECTRICITY ON THE ERIE.

According to a press report from New York City, E. H. Harriman has pledged $14,000,000 to the Erie railroad to enable that company to electrify its New Jersey suburban service, which has provoked bitter complaint among commuters for the last two years. A great electrification program now practically is under way. Mr. Harriman's pledge to raise $14,000,000 for the Erie at this time is regarded in Wall street as the best news received in months. One of the directors of the Erie admitted that the electrification of the main line between Jersey City and Sufferin would be started soon.

When the Hudson River tubes and bridges were being discussed nearly four years ago the Erie Railroad Company employed Bion J. Arnold and L. B. Stillwell, leading experts in railroad electrification, to make a report on the suburban lines of the company. These experts figured out that 220 miles of suburban lines in New Jersey could be electrified profitably at a cost of $14,000,000. But the Erie's troubles began soon afterward. A stock market panic and business depression set in and the report of the electrical commission was shelved. According to the Erie director who was interviewed the suburban service of the Erie can be increased sufficiently to justify the large expenditure for electrification, and the management decided to go ahead with the preliminary work. This director stated that probably it would take several months to get all the ends tied up and that it was hardly likely that electric trains could be run before the end of a year.

MR. MORRISSEY CHOSEN PRESIDENT.

Patrick H. Morrissey, for years chief of the Brotherhood of Railway Trainmen, has been elected president of the Railway Employes' and Investors' Association. Mr. Morrissey's election took place October 16, and he will resign his position as head of the Order of Trainmen as soon as possible.

The association which the labor chief will manage is designed to protect the interests of railway employes and railway investors against hostile legislation, both state and national. Upon the executive committee of the association there are three railway presidents, A. J. Earling, of the St. Paul; B. L. Winchell, of the Rock Island, and E. P. Ripley, of the Santa Fe, and three labor chiefs, Garretson, of the Conductors' Order; Stone, of the Engineers, and Hanahan, of the Switchmen.

TRAFFIC AND FINANCE.

The railroads of Arkansas have increased passenger rates in that state from 2 cents to 3 cents per mile.

Last month the Southern Pacific sold to the banking firm of Kuhn, Loeb & Co. about $15,000,000 of refunding 4 per cent bonds.

According to a report from Philadelphia, the Pennsylvania railroad has 42,000 less idle cars now than it had last spring, when about 92,000 cars were idle.

The Interstate Commerce Commission is assisting the Missouri state authorities in their fight for the support of the 2-cent per mile law and the maximum freight rate law.

The legal department of some of the roads hold that railway companies have as much right legally to sell half-fare tickets to members of the Salvation Army as to clergymen.

Seattle, Wash., will be favored next year with round trip rates of $50 from St. Paul and Missouri River points, on account of the Alaska-Yukon-Pacific Exposition at that point.

The car ferry steamer Manistique, operating between Milwaukee and Grand Haven, Mich., has been acquired by the Grand Trunk railway, and is renamed the Milwaukee. It has a capacity of 32 freight cars.

By its recent purchases of private lines, the government of Austria-Hungary now has control of 8,422 miles of road. The recent purchases include 1,826 miles. The roads of that country are said to be inferior to those of this country.

The annual report of the Baltimore & Ohio, like most other roads, shows a decrease in earnings. The gross earnings for the past year were $73,608,781, a decrease over the preceding year of $8,635,140. The operating expenses also show a decrease of $729,211.

The Mallory Line steamer Brazos recently made a new record run between New York and Galveston, covering the distance in 4 days, 19 hours and 5 minutes. Some of the freight was consigned to north Texas points and the delivery was made, it is claimed, quicker than though it had been shipped all the way by rail.

The annual report of the Atchison, Topeka & Santa Fe Railroad Company has been made public by President E. P. Ripley. The total income to June 30, 1908, was $91,289,770. Deducting operating expenses, including taxes, rentals, etc., of $65,031,582, and fixed charges of $12,579,301, the balance remains at $13,678,886. After the payment of dividends the surplus for the year was $1,885,879.

At the annual meeting of the stockholders of the Norfolk & Western railway recently, all the old officers and directors were reëlected. The directors were given authority to purchase the Lynchburg Belt Line and connecting railway, the West Virginia Southwestern, the Pocahontas & Western, the Caretta and the Big Stony railways.

President Finley, of the Southern, submitted the fourteenth annual report on October 12, in which he showed that the revenues of the road have decreased the past year, but taxes increased. The gross operating revenues for the last year were $52,941,716.51, a decrease of over $3,700,000. The company operated 7,489.13 miles, according to the report, a decrease of 57.73 miles.

The imports into the United States for August were $91,255,308, a decrease of $34,550,645 from August, 1907. The domestic exports for August amounted to $108,796,220, a decrease of $16,054,537. For the first eight months of 1908 the total domestic exports amounted to $1,075,076,555, and the imports $700,141,956, against $1,176,282,488 and $1,001,707,119 respectively for a like period of 1907. The declines in foreign trade this year are in similar proportion to those of the leading European countries, and affect nearly all commodities.

The annual report of the Illinois Central railroad was given out on October 7 by President J. T. Harahan. It showed that the total operating income for the fiscal year of 1908 was $57,187,000 in round numbers, a decrease of $2,340,000, or 3.93 per cent under 1907. Total freight revenue was $35,357,000, a decrease of 7.03 per cent under 1907. Total passenger income was $10,991,000, a decrease of 1.75 per cent. The report said the latter decrease was due to a reduction in passenger fares from 3 cents to 2 cents per mile in Illinois and Iowa and in part to general depression.

President Frank Trumbull, of the Colorado & Southern, is quoted as saying: "The outlook for a good business along our lines was never brighter, and from what I can learn the roads of the Colorado & Southern system in this state are doing a good business, and the reports show a good increase in the tonnage. Our business has increased to such an extent within the past few years that, though heretofore a well maintained dirt road was sufficient to handle our tonnage, in ten years freight tonnage has increased 179 per cent and passenger train mileage has increased 174 per cent on the Fort Worth & Denver line alone, a total of 138, so that 67 miles have been graveled and rock ballasted."

AUTHORITY OVER FOREIGN BUSINESS.

Just what authority the Interstate Commerce Commission has over business handled between this and foreign countries, has never been thoroughly understood by many shippers nor by the transportation companies. Mr. Franklin K. Lane, interstate commerce commissioner, has made public a letter written by him to the Chamber of Commerce at Tacoma, Wash., in which he makes plain the commission's authority in matters of this nature. Quoting from that letter, Mr. Lane says:

Such a general misunderstanding exists as to the nature of the decision in the Cosmopolitan Shipping case that it seems worth while to point out just what our ruling was. The Cosmopolitan Shipping Company operates a line of steamships plying between Philadelphia and different ports of northern Europe. In its complaint preferred before the commission it alleged that the Hamburg-American Packet Company, North German Lloyd Steamship Company, the Wilson Lines and the Scandinavian American Line had organized a so-called "pool" whereby all traffic originating in the United States, whether on the seaboard or in the interior, and destined to the north of Europe, was divided among themselves in certain designated proportions. The complainnnt asked that this "Baltic pool" be declared illegal because in contravention of the anti-pooling provision of the Interstate Commerce Act.

The commission was thus confronted with the question of its jurisdiction over ocean steamship lines plying between the American seaboard and a foreign country non-adjacent. This question had been raised frequently before this time, but had never been finally determined. After careful consideration the commission ruled that the jurisdictional clause of the Interstate Commerce Act gave the commission no authority over these foreign steamship lines. The complaint was therefore dismissed.

But this does not mean that the commission is altogether without authority over the foreign commerce of the United States. The Interstate Commerce Act is by its terms applicable to the transportation of "property shipped from any place in the United States to a foreign country and carried from such place to a port of transshipment, or shipped from a foreign country to any place in the United States and carried to such place from a port of entry either in the United States or an adjacent foreign country." It thus appears that the commission has ample jurisdiction over the foreign commerce of the United States while moving between the seaboard and interior points. It logically and necessarily follows that the rate for the inland movement to or from the seaboard must be filed and published in order to comply with the express provisions of the law. A contrary holding would deprive the commission of all jurisdiction over foreign commerce. If joint rates only were required to be published, the proportion of each carrier being unknown, the law could easily be set at naught through collusion between railroads and ocean carriers. Rebates and preferences could be granted at will. No punishment could be imposed for making a concession from a joint rate of this character, as it would be impossible to connect the offense with the carrier over which alone the commission has control.

That this ruling is in accord with the law is not questioned. The railroads have not gone into court to have the commission enjoined, because they know its position is legally unassailable. The whole difficulty arises from their reluctance to make public the inland proportions of these joint rates. Their earnings on this traffic are so small that they fear the dissatisfaction of domestic shippers and the complaints that would follow.

The commission is urged to reverse its ruling upon the ground that it is doing serious injury to the Pacific trade. If this were so, it would not reflect upon the commission's ruling, but would argue against the advisability of the law which the commission is charged to enforce. However, there is good authority for the position that the ruling in question is not the cause of the depression in the Pacific trade.

FROM MY OBSERVATION CAR.

By R. R. Jester.

The New York, New Haven & Hartford management believes in rewarding ability and faithful service. As a result of this policy, Mr. Norman J. Lee has been promoted to the office of general agent in the passenger department, with headquarters at the Grand Central passenger station in New York City. Mr. Lee has been traveling passenger agent only two years, having been promoted to that office from a clerkship in the general offices. In his recent promotion he succeeds

N. J. LEE.

Mr. Charles A. Call, who has been transferred to Boston in a similar capacity. Mr. Lee has proven to be a live business-getter in his new field, hence his recent promotion. He has hundreds of warm friends who will be glad to learn of his recent climb in the railway world and who will give him the glad hand. It is my sincerest hope to again record his promotion in the near future. He is the kind who deserves success and an increased salary.

* * *

Is there any railway clerk or mechanic or even a laborer who does not care to advance? I guess not. One of the noble characteristics of Americans is ambition, a desire to do a little better and climb a little higher. I was pleased to read in a recent issue of the Rock Island Employes' Magazine in which an employe gave some splendid advice to those in railway service who wished to advance. Here are some of the paragraphs taken from his thoughtful suggestions, which I believe most any responsible railway man will endorse: "By looking over the officers of the Rock Island you can name many who were stenographers, and there is no reason why in 15 years, right here on the Rock Island, there should not be at least 10 or 15 more of our present stenographers and private secretaries filling official positions in the operation of the road. Many are not grasping the opportunity offered; they seem to be afraid of soiling their hands. Talk with the switchman and the train and enginemen; you will find them very willing to tell you all they know about the railroad and its work. Notice how a switch is made and note the difference in the various kinds of frogs, and ask questions of everybody you see. When you hear of a wreck or washout, and it is possible to get to it, go, and note just how the wreckers pick up an engine or turn over a car. Watch the trainmaster or officer in charge of the work and see just what his duties are. Be a mixer. Instead of going to the ball game every Saturday afternoon, take one or two half days and go out over the railroad and get acquainted with the locations of various stations, side tracks, etc. I am leaving the service of this company after six years' service, but the Rock Island cannot stop my taking with me one thing—the experience I have gained; neither have they enough money to offer me for my experience during a recent four weeks on the Choctaw district, where I learned the manner of fighting washouts." I would suggest that you read the above remarks the second time. They are worth the time.

* * *

Those familiar with railway managements know that they are not all "soulless corporations," as some politicians would have you believe. Acts of kindness on the part of railway companies are often recorded, and many do not get into print. Here is an illustration of an act of kindness and appreciation shown a man who has been filling one of the humblest positions on the road. According to the Pittsburg Press-Despatch, Mr. William Banks, of Spruce Creek, Pa., has been placed on the Pennsylvania railroad's pension roll after a service of 50 years, during 25 years and 10 months of which he was night watchman at the Spruce Creek tunnels. The distance walked by the night watchman each night through the tunnels would be in round numbers about 12 miles. Basing it upon this average, the distance in 25 years would equal 113,100 miles. In recognition of faithful service, the road has presented Mr. Banks and his wife with an annual pass over the line.

* * *

What would you give, off-hand, as the definition of steam? Is it a simple element to define? At an examination of firemen for promotion, held by one of the roads in Texas recently, this question was put to a fireman: "What is steam?" He hesitated for a moment and then replied: "Steam is water gone crazy with heat." He was promoted.

* * *

Everybody loves to hear a good Irish story of any application. There is not a railroad man hardly who has not been in a tight place, and will thoroughly appreciate the following story told by Mr. J. N. Tittemore before the National Association of Freight Traffic Agents: In choosing my subject, and in working in the detail so as to please you all and not to displease anyone else in my effort to trim, I found myself in the position of the old Irish roadmaster, who for a great many years worked on one of our Western roads, and who had been danced in on the "carpet" by his superintendent for some fracture of discipline or rule. The old man had received a severe reprimand, and as he was walking home, he soliloquized something like this: The superintendent is wrong. He is usually wrong. Of course, I'll have to apologize or be discharged. He is a big man and he has authority over me, and he can keep me here or let me go. Oi needs me job. Oi would apologize if he was here, but he is not here, and if he was here, how could Oi apologize whin Oi'm in the right and he is in the wrong? The roadmaster's name was Pat Murphy. As he approached his dwelling place he observed a farmer shoveling potatoes into his cellar. On making an inspection he espied a very peculiarly-grown tuber, formed with a center tuber about as large as a hen's egg and closely squeezed in between two larger tubers. The center spud was pressed into a very small and insignificant compass. It struck Pat instantly that with that potato he might save his position and evade the humiliation of an apology by a sally of wit. He carefully folded the potato in a piece of green paper, tied it up with a string, placed it in a box, and sent it to the superintendent with a card, upon which was this inscription: "Another Murphy in a d—d tight place."

NATIONAL ASSOCIATION OF FREIGHT TRAFFIC AGENTS.

The proceedings of the second annual convention of the National Association of Freight Traffic Agents are from the press and show that the association held an important convention. The addresses of leading traffic men are full of good thoughts for the young railway men in the traffic field.

Secretary Geo. B. Hild, of Cincinnati, informs the Railway Journal that the Pittsburg, Pa., division held a meeting and elected the following officers: President, Oscar Townsend, Canadian Pacific; vice-president, O. F. Spindler, Colorado Midland; secretary, E. S. Israel, Vandalia railway; treasurer, J. N. Templeton, Southern railway; all of Pittsburg.

PERSONAL

EXECUTIVE, OPERATING AND PURCHASING.

Benj. B. Foster has been elected vice-president of the Elmina & Eastern Transportation Co.

Chester W. Bliss has been elected a director of the Boston & Albany, vice **William Bliss**, deceased.

W. D. Carrigan has been made general counsel of the Wisconsin Central, vice **T. H. Gill**, resigned.

F. Cone has been made trainmaster of the Burlington at Burlington, Ia., vice **W. H. DeWitt**, resigned.

F. S. Fowler has resigned as assistant treasurer of the Lehigh & New England, and the office is abolished.

Dennis Searles has been appointed assistant to the president of the Tonopah & Tidewater, with office at Oakland, Cal.

F. P. Gutelius has been appointed general superintendent of the Lake Superior division of the Canadian Pacific.

G. C. Foy has been made chief train dispatcher of the Pere Marquette at Detroit, Mich., vice **G. W. Groom**, resigned.

A. E. Roome has been appointed superintendent of telegraph, telephone and signals on the Pacific Electric Railway.

W. T. Eldridge has been chosen president of the Sugarland Railway, vice **Jonathan Lane**, resigned; office at Sugarland, Tex.

J. W. Ryan has been made superintendent of the Salt Lake & Ogden, vice **A. D. Pierson**, office at Salt Lake City, Utah.

F. G. Pettibone, of the Santa Fe in Texas, has been chosen president of the Houston Belt & Terminal Co., at Houston, Tex.

D. P. Bennett, Hans Winterfeldt, Walter R. Rosen and **G. W. Wickersham** have been chosen directors of the Mexican Central.

Frederick Foster has been chosen a member of the board of directors of the Chesapeake Steamship Co., vice **R. C. Foster**, deceased.

H. L. Harmon has been chosen president of the Kansas City Union Depot Co., at Kansas City, vice **E. J. Sanford**, deceased.

Chas. H. Osborn has been appointed assistant superintendent of car department of the Chicago & Northwestern, office at Chicago.

Charles T. Lewis was chosen as second vice-president and general counsel of the Toledo & Ohio Central and the Kanawha & Michigan.

A. M. Ingersoll has been chosen vice-president of the Chicago, Milwaukee & St. Paul, of Washington; office at Tacoma, Wash.

J. A. C. Groner has been appointed assistant to **Thomas Fitzgerald**, general manager for the receivers of the Norfolk & Southern.

J. F. Liston has been made chief train dispatcher of the Frisco at Birmingham, Ala., vice **W. H. Walsh**, assigned to other duties.

E. G. Goforth has been made chief train despatcher of the International & Great Northern at Mart, Tex., vice **A. G. Whittington**.

L. E. Baillie has been made assistant trainmaster of the Vandalia at Terre Haute, Ind., vice **D. Dale**, transferred to Logansport, Ind.

M. S. Decker, of the New York Public Service Commission, has ben chosen president of the National Association of Railway Commissioners.

W. D. Hines has been chosen chairman of the executive committee of the Santa Fe, vice **Victor Morawetz**, resigned; office at New York City.

W. F. Jones has been appointed trainmaster on the Colorado division of the Union Pacific at Denver, Colo., succeeding **E. S. Van Tassel**, resigned.

George T. Reid has been appointed general western counsel of the Northern Pacific, with office at Tacoma, Wash., succeeding **B. S. Grosscup**, resigned.

D'Arcy Scott, mayor of Ottawa, Ont.; **Professor S. J. McLean** and the **Honorable T. Greenway** have been appointed on the board of railway commissioners for Canada.

A. E. Welby has been chosen vice president of the Denver, Laramie & Northwestern, office at Denver. **Mr. Welby** was formerly general superintendent of the D. & R. G.

H. J. Steinboemer, storekeeper of the San Antonio & Arkansas Pass at Yoakum, Tex., has been made chief clerk to the purchasing agent of the road at San Antonio, Tex.

Edward S. Moore, assistant superintendent of the Rock Island-Frisco terminals at St. Louis, has been made second assistant to the president of the Rock Island, office at Chicago.

C. E. Shepard, general yard master of the Northern Pacific at Livingston, Mont., has been appointed trainmaster at Livingston. **J. L. Botsford** succeeds **Mr. Shepard** as yardmaster.

B. S. Grosscup, who resigned as counsel of the Northern Pacific, western district, is practicing law at Tacoma, Wash., and will also act as attorney for certain street railways in that vicinity.

J. D. Morton has been appointed general auditor of the Canadian Northern Ontario, the Halifax & Southwestern, the Canadian Northern Quebec and the Quebec & Lake St. John, with office at Toronto, Ont.

B. C. Cage, president of the Stephensville, North & South Texas, has assumed the duties also of general manager, vice **L. J. Polk**, resigned as vice-president and general manager to engage in private business.

E. A. Theed, assistant superintendent of the Toledo division of the Lake Shore & Michigan Southern, has been appointed assistant superintendent of the Michigan division, vice **T. J. Dawson**, assigned to other duties.

W. W. Davis has been made storekeeper of the Pecos Valley at Amarillo, Tex., vice **F. C. McLaughlin**, transferred. **C. M. Smith** has been made storekeeper of the Santa Fe at Richmond, Calif., and **H. D. Weir** at Winslow, Ariz.

Charles T. Lewis has been elected second vice-president of the Toledo & Ohio Central, succeeding **James M. Ferris**, deceased. **John Landgraf, Jr.**, auditor, has been appointed also secretary, which office was previously held by **Mr. Ferris**.

B. A. Campbell, trainmaster of the Southern Pacific Lines east of Sparks, has been transferred to Ogden, Utah, as trainmaster, vice **John McCarty**, deceased. **Frederick Easton**, roadmaster at Ogden, succeeds **Mr. Campbell** at Winnemucca, Nev.

C. W. Buchanan, chief train despatcher of the Indianapolis division of the Big Four at Bellefontaine, O., has been appointed trainmaster of that division, vice **G. F. David**, assigned to other duties. **W. E. Miller** succeeds **Mr. Buchanan** as chief despatcher.

A. E. Wallace has been appointed trainmaster of the Burlington at Sheridan, Wyo., with jurisdiction over the Sheridan division west. **M. C. Hughes** has been appointed trainmaster at Sheridan, with jurisdiction over the territory from Sheridan to Edgemont, So. Dak.

F. D. Kellogg has been elected treasurer of the Illinois Southern, succeeding **C. F. Weinland**, resigned. **M. E. Keehan** has been appointed auditor, vice **D. M. Cameron**, resigned to accept service elsewhere, and **H. Knowles** has resigned as car accountant, to accept service elsewhere.

K. A. Easley, trainmaster on the Choctaw division of the Missouri, Kansas & Texas at Denison, Tex., has been appointed trainmaster at Parsons, Kan., vice **E. M. Gates**. **R. L. Gardener**, chief despatcher at Denison, Tex., succeeds **Mr. Easley**. **E. P. Blount** succeeds **Mr. Gardener**.

J. E. McCarthy, trainmaster of the Iowa Central at Oskaloosa, Ia., has been transferred to Marshalltown, Ia., in charge of the line from Albert Lea, Minn., to Centerville, Ia., including the five branches. **H. G. Kruse** has been appointed trainmaster at Monmouth, Ill., in charge of the line from Oskaloosa, Ia., to Peoria, Ill.

R. W. Baxter has been made superintendent of the Buffalo division of the Lehigh Valley, office at Buffalo; **C. J. Shea** is assistant superintendent at Sayre, Pa.; **N. L. Moon** is superintendent at Wilkesbarre, Pa., and **C. W. Kinney** is superintendent at Auburn, N. Y., vice **H. D. Titus**, assigned to other duties. **F. G. Rogers** is superintendent of the Lake division (steamship lines), office at Buffalo.

H. V. Platt, superintendent of the Los Angeles division of the Southern Pacific, has been appointed general superintendent of the Southern district at San Francisco, Cal., succeeding **R. H. Ingram**, resigned. **W. H. Averell**, superintendent of the Tucson division, succeeds **Mr. Platt** at Los Angeles. **W. H. Whalen**, superintendent of the Shasta division, succeeds **Mr. Averell**, with office at Tucson, Ariz. **J. H. Dyer** succeeds **Mr. Whalen**, with office at Dunsmuir, Cal.

E. L. Cudleigh, trainmaster of the Canadian Pacific at Cranbrook, B. C., has been transferred to Macleod, Alb., with jurisdiction over the Crow's Nest section and the Macleod branch. **J. A. Kennedy**, trainmaster at Medicine Hat, Alb., succeeds **Mr. Cudleigh**, with jurisdiction over the Cranbrook section, including Crow's Nest terminal, Sirdar section and the Kimberly and Curzon branches. **A. N. Hobkirk**, master mechanic at Cranbrook, succeeds **Mr. Kennedy**.

TRAFFIC AND ACCOUNTING.

H. P. Smith has been appointed soliciting freight agent of the Seaboard Air Line at Denver, Colo.

F. E. Browne, general agent of the Gulf & Interstate, has resigned, and that office has been abolished.

F. C. Krauser has been appointed auditor of the Rio Grande Southern, with office at Denver, Colo.

G. N. Thomas, traveling freight agent of the Wabash at Toledo, O., has been transferred to Pittsburg, Pa.

M. A. Greding has been appointed contracting agent of the New York Central fast freight lines at St. Louis.

James E. Meroney has been appointed traveling freight agent of the St. Louis Southwestern at Dallas, Tex.

W. O. Chears has been appointed commercial agent of the Atlanta, Birmingham & Atlantic at Birmingham, Ala.

E. E. Britney has been appointed traveling freight agent of the Big Four, with headquarters at St. Louis, Mo.

George Gardenshire has been made local freight agent of the Frisco at Denison, Tex., vice **C. M. Hadley**, resigned.

G. H. Griffin has been appointed city passenger agent of the Canadian Pacific at Buffalo, N. Y., vice **R. A. Burford.**

W. R. Pargeter has been appointed commercial agent of the Union Pacific at Norfolk, Neb., vice **N. W. Clover**, resigned.

W. H. Ogborn has been made general freight and passenger agent of the Illinois Southern at Chicago, vice **H. P. Radley**, resigned.

T. W. Wuerpel has been appointed general agent of the National Lines of Mexico and the Mexican Central at Monterey, Mex.

H. P. Radley, general freight and passenger agent of the Southern Indiana, has removed his office from Chicago to Terre Haute, Ind.

J. W. Adams has been appointed general northwestern agent of the Erie Despatch, with offices at St. Paul, Minn., and Minneapolis.

George W. Pettengill has been appointed general traveling agent of the Clyde Steamship Co., with office at Pier 36, North river, New York.

J. F. Slowley has been appointed commercial agent of the Georgia Southern & Florida at Nashville, Tenn., vice **R. R. D. Tollowell**, resigned.

C. E. Cost has been appointed traveling foreign freight agent of the Kansas City Southern, with headquarters at Kansas City, Mo.

H. E. Dickinson, traveling freight agent of the Chicago, Peoria & St. Louis at Chicago, has been appointed general agent at Peoria, Ill.

W. H. Rutland has been appointed assistant traffic manager of the Elmina & Eastern Transportation Co., with office at Kansas City, Mo.

J. M. Whitford, commercial agent of the Missouri, Kansas & Texas, has had his headquarters moved from Atlanta, Ga., to Chattanooga, Tenn.

Nathaniel Green, manager of the Frank Zotti Steamship Co., has been appointed city passenger agent of the Chicago & Alton at New York.

L. J. Bunstein has been appointed freight agent of the Philadelphia & Reading at Erie avenue, Philadelphia, Pa., vice **Frank Faust**, resigned.

R. N. Paist, paymaster of the Minneapolis, St. Paul & Sault Ste. Marie, has been appointed assistant secretary and treasurer, a new office.

H. O. Yant, agent of the Toledo & Ohio Central at Findlay, O., has been appointed traveling freight agent at Toledo, vice **Frank Kiley**, resigned.

John L. Sullivan has been appointed traveling freight agent of the Chicago Great Western at Fort Dodge, Ia., vice **W. S. Wheaton**, resigned.

E. B. Daly has been appointed acting freight claim agent of the Kansas City Southern, with office at Kansas City, Mo., vice **W. E. Church**, resigned.

Jas. A. Griffith has been made land commissioner of the Union Pacific, vice **B. A. McAllister**, transferred to the Southern Pacific & Oregon Short Line.

J. F. Gowan, southern passenger agent of the Chicago & Eastern Illinois, has been appointed traveling passenger agent of the Missouri Pacific at Chicago.

J. W. Kirkland has been appointed rate expert of the Alabama Railway Commission, with office at Montgomery, Ala., vice **J. D. Patterson**, resigned.

W. H. Osborn has been appointed general freight and passenger agent of the Illinois Southern, vice **H. P. Radley**, resigned to accept service elsewhere.

C. H. Libbe has been appointed contracting agent of the Big Four at St. Louis, Mo.

Thomas Follen, district passenger agent of the Wabash at Lafayette, Ind., has resigned.

Edward Fitch has been made southwestern passenger agent of the Missouri Pacific at San Antonio, Tex.

Richard A. Belding, traffic manager of the Inter-Urban Railway of Des Moines, Ia., has been appointed general eastern agent of the Chicago Great Western.

H. C. Young, traveling passenger agent of the Rock Island at Pittsburg, Pa., has been appointed traveling passenger agent of the Missouri Pacific at Pittsburgh.

S. C. Milbourne has been appointed general agent of the Union Pacific, the Oregon Short Line and the Oregon Railroad & Navigation Co. at Philadelphia, Pa.

E. L. Cory has been appointed traveling freight agent of the Evansville & Terre Haute, vice **P. H. Byers**, resigned to engage in business at Poseyville, Ind.

J. B. DeFriest has been appointed general eastern freight and passenger agent of the Union Pacific, with headquarters in New York, vice **R. Tenbroeck**, retired.

H. P. Hughes, traveling passenger agent of the Texas & Pacific, has been appointed general baggage agent at Dallas, Tex., succeeding **W. W. Campbell**, resigned.

D. P. Brown has been appointed chief clerk, passenger department, of the Eastern of New Mexico and the Southern Kansas Railway of Texas, at Amarillo, Tex.

A. E. Duff, general agent, passenger department, of the Grand Trunk, has been appointed district passenger agent of the Grand Trunk Pacific at Winnipeg, Man.

W. F. Cody has been appointed division freight and passenger agent of the Chicago, Milwaukee & St. Paul, with office at Mason City, Ia., vice **W. P. Warner**, promoted.

Hudson Fitch has been made traffic manager of the Toledo & Ohio Central and the Kanawha & Michigan, and **E. L. Jameson** has been made general freight agent.

Robert N. Collyer has been appointed as a member of the working committee on uniform classification and has resigned as assistant general freight agent of the Wabash.

J. Lallande has been appointed assistant general freight agent of Morgan's Louisiana & Texas Railroad & Steamship Co. and the Louisiana & Western at New Orleans.

J. C. Reister, commercial agent of the San Antonio & Aransas Pass, at Houston, Tex., has been appointed traveling freight agent. **Arthur R. Canfield** succeeds **Mr. Reister.**

William Kirlicks has been appointed commercial agent of the Houston & Texas Central at Corsicana, Tex. **Nathaniel Parks** has been appointed live stock agent at San Antonio.

J. H. Guyot has been appointed soliciting freight agent of the International & Great Northern at Austin, Tex. **J. G. Worrall** has been appointed commercial agent at Houston.

Benjamin Wagner has been appointed traveling freight agent of the Chicago, Indiana & Southern at Streator, Ill., vice **Thomas Brennan**, resigned to accept service elsewhere.

W. D. Clifton has been appointed traveling freight agent of the Nebraska and Wyoming divisions of the Union Pacific, with office at Omaha, Neb., succeeding **J. G. Lowe**, promoted.

E. J. Dowie has been appointed industrial agent of the Big Four and the Cincinnati Northern, with office at Cleveland, O., reporting to the general freight agent at Cincinnati, O.

Ashton B. Collins has been appointed soliciting freight agent of the New Orleans & Northeastern, Alabama & Vicksburg, and Vicksburg, Shreveport & Pacific, vice **W. F. Rodgers**, transferred.

A. E. Buck has been made commercial agent and city ticket agent of the St. Louis, Brownsville & Mexico, at Houston, Tex., and **C. J. Peyton** assumes a similar position at Corpus Christi, Tex.

Charles Eikel, agent of the Mexican International at Durango, Dur., Mex., has been appointed general agent of the Southern Pacific at Monterey, N. Leon, Mex., vice **H. N. Gibson**, deceased.

H. A. Poveleite, general freight agent of the Q. & C. at Cincinnati, has been made manager of the Queen & Crescent Fast Freight line, and **S. A. Williams** is commercial agent of the latter line.

R. E. Lawrence, general agent of the Wheeling & Lake Erie at Wheeling, W. Va., has been appointed general agent, freight department, of the Wabash, with headquarters at Pittsburgh, Pa.

R. W. Weaver has been appointed manager of a joint freight filing bureau at Montgomery, Ala., for the Seaboard Air Line, the Mobile & Ohio, the Atlantic Coast Line and the Central of Georgia.

A. S. Hanson, general passenger agent of the Boston & Albany, and all his office force, have moved from Boston to New York City, effective November 1.

A. J. Blaisdell has been appointed general agent, passenger department, of the Canadian Pacific at Cincinnati, O., vice **R. L. Thompson**, transferred to Toronto, Ont.

M. Walsh, inspector of trains and agencies of the Atlanta, Birmingham & Atlantic, has been appointed commercial agent at Cincinnati. **O. M. Williams**, local agent at Waycross, Ga., succeeds **Mr. Walsh.**

F. H. Clendenning has been appointed city freight agent of the Canadian Pacific and district freight agent of the Esquimalt & Nanaimo, with office at Victoria, B. C., vice **George L. Courtney**, resigned.

J. H. Whifford, commercial agent, and **E. L. Satsky**, traveling freight agent, of the Missouri, Kansas & Texas at Atlanta, Ga., have been transferred to Chattanooga, Tenn., and their former offices abolished.

H. B. Dunham, general freight agent of the Hocking Valley, has been appointed traffic manager. **H. Q. Wasson**, assistant general freight agent, succeeds **Mr. Dunham**, and his former office has been abolished.

G. F. Snow, general freight agent of the Bangor & Aroostook, has been appointed special agent at Bangor, having direct charge of all industrial matters. **George E. Wicks** succeeds **Mr. Snow**, with office at Bangor, Me.

J. A. Barry, traffic manager of the Jamestown, Chautauqua & Lake Erie and the Chautauqua Steamboat Co., has resigned, and his position has been abolished. **H. A. Macbeth**, freight agent, assumes **Mr. Barry's** duties.

J. C. Finch has been appointed assistant general freight agent of the Missouri, Kansas & Texas at Kansas City, Mo., vice **R. F. Campbell.** **L. B. Chipley** has been appointed commercial agent at Oklahoma City, Okla.

P. B. Maxwell, traveling passenger agent of the New York Central & Hudson River at Buffalo, N. Y., has been transferred to Watertown, N. Y. **C. F. McDonald**, passenger agent at Niagara Falls, succeeds **Mr. Maxwell.**

Elmer Smith, passenger and ticket agent of the Missouri Pacific and the St. Louis, Iron mountain & Southern at Cairo, Ill., has been appointed passenger and ticket agent at Memphis, Tenn., succeeding C. E. Rountree, resigned.

P. W. Johnson, city passenger agent of the Rock Island and of the St. Louis & San Francisco at Wichita, Kan., has been appointed traveling passenger agent there, vice **R. L. Baker**, resigned to engage in other business.

Gabe Filluel, joint commercial agent of the National Lines of Mexico and the Mexican Central at New Orleans, La., has been appointed also general passenger agent of the Mexican-American Steamship Line, with office at New Orleans.

E. J. Richards, chief assistant general passenger agent of the New York Central & Hudson River, has resigned on account of ill health, and will hereafter perform such duties as may be assigned to him by the general passenger agent.

J. F. Horrigan, assistant freight claim agent of the Northern Pacific, has been appointed freight claim agent, with office at St. Paul, Minn., succeeding **W. J. Horrigan**, resigned. **J. M. Mooney** succeeds **J. F. Horrigan**, with office at Tacoma, Wash.

E. G. Spencer, soliciting freight agent of the Kansas City Southern at Kansas City, Mo., has been appointed traveling freight agent at Kansas City, vice **W. D. Pratt**, resigned to engage in other business. **F. E. Browne** succeeds **Mr. Spencer.**

E. A. Turner, commercial agent of the International & Great Northern at Dallas, Tex., has been appointed to a position in the general freight office at Palestine, Tex., and **George Simpson**, soliciting freight agent at Galveston, Tex., succeeds **Mr. Turner.**

W. H. Wylie, commercial agent of the Wabash at St. Louis, has been appointed assistant general freight agent at St. Louis, vice **R. N. Collyer.** **H. G. Holden**, chief contracting agent, succeeds **Mr. Wylie**, and **B. H. Coyle**, contracting agent, succeeds **Mr. Holden.**

T. J. Barnes, traveling passenger agent of the Canadian Pacific at Chicago, has been appointed passenger agent there, at Omaha, Neb., has been appointed general agent of the Union Pacific and the Southern Pacific at St. Louis, Mo., succeeding **L. E. Townsley**, resigned.

E. D. Parker, assistant general freight agent of the "Soo Line," has his jurisdiction extended over the entire line, office at Minneapolis, Minn. **A. L. Preston**, general agent at Winnipeg, is transferred to St. Paul, and **J. C. Peterson** becomes general agent at Winnipeg.

J. G. Lowe, traveling freight agent of the Union Pacific succeeding **A. J. Blaisdell**, transferred to Cincinnati, O., as general agent passenger department.

John C. Maher has been made traveling freight agent of the Great Northern at Spokane, Wash., vice **W. C. Wilkes**, resigned to accept service with the Portland & Seattle, at Portland, Ore. **P. R. Flanagan** becomes contracting agent of the Great Northern at Spokane.

J. A. Steltenkamp, traveling passenger agent of the Missouri Pacific and the St. Louis, Iron Mountain & Southern at Cincinnati, O., has been transferred as traveling passenger agent to Louisville, Ky., vice **J. H. Gallagher**, resigned. **W. J. Frost** succeeds **Mr. Steltenkamp.**

F. E. Clark, commercial agent of the Chicago, Milwaukee & St. Paul at Cleveland, O., has been appointed general agent of the lines in South Dakota, Montana and Washington, with office at Butte, Mont. **C. E. Hilliker**, traveling freight agent at Milwaukee, Wis., succeeds **Mr. Clark.**

F. A. Eisiminger, traveling freight agent of the Toledo, St. Louis & Western and the Chicago & Alton at Atlanta, Ga., has been appointed commercial agent of these roads at Birmingham, Ala., and the former office is abolished. **J. A. Fitzpatrick** has been appointed southwestern freight agent at Dallas, Tex.

D. W. Head, traveling freight agent of the Gulf, Colorado & Santa Fe at Ft. Worth, Tex., has been appointed soliciting freight agent, with headquarters at Houston, Tex., vice **J. Carlton**, transferred to Sealy, Tex. **A. G. Graham**, soliciting freight agent at Ft. Worth, succeeds **Mr. Head.** **W. L. McWhirter** succeeds **Mr. Graham.**

John H. Howard, freight claim agent of the Chicago & Alton and the Toledo, St. Louis & Western, has been appointed freight claim agent of the Chicago Great Western, with office at St. Paul, Minn., vice **J. W. Adams**, resigned to go to another company. **H. B. Belt**, assistant freight claim agent of the Chicago & Alton and of the Toledo, St. Louis & Western, has been appointed freight claim agent of these roads, with office at Chicago.

ROADWAY AND ENGINEERING.

C. E. Lindsay has been made division engineer of the New York Central at Albany N. Y.

Wm. Corliss has been made roadmaster of the Union Pacific at Cheyenne, Wyo., vice **E. J. Boland**, transferred.

L. N. Miller has been made engineer of maintenance of way of the Mexican Central at Mexico City, vice **J. T. Gardner.**

T. S. Leake, superintendent of buildings of the Missouri Pacific, has resigned to engage in general contracting business.

J. M. McGreery has been appointed roadmaster of the Canadian Pacific at Nelson, B. C., vice **H. Beck**, assigned to other duties.

Geo. S. Foster has been made division engineer of the Chicago, Cincinnati & Louisville at Chicago, vice **E. B. Espenshade**, resigned.

Wm. Duane has resigned as chief engineer of the Big Four to become general manager of the Walsh R. R. Construction Co. at Davenport, Ia.

C. C. Smythe has been appointed acting general foreman of the bridge and building departments of the Chicago, Cincinnati & Louisville, vice **S. H. Shinn.**

W. I. Davis, roadmaster of the Rock Island at Haileyville, Okla., with jurisdiction over the Ardmore branch, will hereafter have jurisdiction over the line from Booneville, Ark., to Haileyville, Okla., with headquarters at the latter place. **J. W. Guffey** succeeds **Mr. Davis**, with jurisdiction over the Ardmore branch.

J. M. R. Fairbairn has been made principal assistant engineer of the Canadian Pacific, office at Montreal. **C. B. Brown** is made division engineer at that point; **Frank Taylor** becomes division engineer at North Bay, Ont., and **G. L. Wetmore** becomes division engineer at St. John, N. B. **J. G. Sullivan** has been made assistant chief engineer at Montreal.

J. A. Allen has been appointed roadmaster of the Southern Pacific lines east of Sparks, Nev., with office at Ogden, Utah, vice **Frederick Easton.** **John Reddy** succeeds **Mr. Allen.**

E. J. Bohanan, roadmaster of the Rock Island at Little Rock, Ark., has been appointed roadmaster of the Kansas City Southern at Port Arthur, Tex., vice **J. A. Waller**, resigned.

MECHANICAL.

A. H. Powell has been made master mechanic of the Denver & Rio Grande at Salt Lake City, Utah.

A. T. Short has been made master mechanic of the Canadian Pacific at Cranbrook, B. C., vice **A. N. Hobkirk**, promoted.

H. D. Wright has been made master smith of the Big Four at Beach Grove, Ind.

J. T. McSweeney has been made master smith of the Baltimore & Ohio at Baltimore, Md.

C. C. Reynold has been made road foreman of the Santa Fe at Winslow, Ariz., vice **Wm. Daze,** promoted.

R. R. Royal has been made foreman of the locomotive and car department of the Mobile, Jackson & Kansas City.

T. F. Barton has been made master mechanic of the Morris & Essex division of the Delaware, Lackawanna & Western.

M. S. Curley has been made master mechanic of the Rock Island lines at Beaumont, Tex., vice **A. L. Moler,** resigned.

E. M. Sweetman has been appointed master mechanic of the Southern Railway at Sheffield, Ala., vice **W. F. Moran,** resigned.

J. F. Casey has been appointed general foreman, car department, of the St. Louis, Brownsville & Mexico at Kingsville, Tex.

C. W. Tessiers has been appointed master car builder of the Mexican Central, vice **J. H. O'Brien,** resigned; office at Mexico City.

S. E. Kildoyle has been appointed master mechanic and master car builder of the Vera Cruz & Isthmus, with headquarters at Sierra Blanco, V. C., Mex.

John Schrader, assistant car foreman of the New York Central, has been appointed general car foreman of the car department, Mott Haven yards, New York.

W. S. Carter, formerly secretary and treasurer of the Brotherhood of Locomotive Firemen, was chosen grand master to succeed **J. J. Hannahan.**

C. H. Osborn, master mechanic of the Chicago & North-Western at Baraboo, Wis., has been appointed assistant superintendent of the car department, with office at Chicago.

G. W. Cuyler, roundhouse foreman of the Big Four at Mt. Carmel, Ill., has been appointed roundhouse foreman of the Rock Island at Booneville, Ark., vice **A. Schnable,** resigned.

W. J. Hoskin, master mechanic of the Chicago Great Western at Des Moines, Ia., has been appointed master mechanic of the Chicago & Alton, with headquarters at Bloomington, Ill.

T. M. Baughan has been appointed general car foreman of the Arkansas division of the Rock Island, vice **T. E. Carter,** resigned to become general car foreman of the Denver & Rio Grande at Denver, Colo.

R. V. Hogue, assistant master mechanic of the Denver & Rio Grande at Salt Lako City, Utah, has been appointed acting mechanic at Salt Lake City, vice **A. H. Gairns,** resigned to accept service elsewhere.

Chas. Anderson has been made general foreman of the car department of the Wabash at Toledo, O. **A. S. Sternberg** becomes general inspector in the car department, and **C. E. Stough** has been made car foreman at Landers, Ill.

G. E. Carson, master car builder of the Pittsburgh & Lake Erie, has been appointed master car builder of the New York Central & Hudson River at West Albany, N. Y., and **Samuel Linn** succeeds **Mr. Carson** at McKee's Rock, Pa.

J. T. Carroll, assistant master mechanic of the Lake Shore & Michigan Southern at Elkhart, Ind., has been appointed master mechanic of the Lake Erie & Western at Tipton, Ind. **A. R. Ayres,** assistant superintendent of shops at Collinwood, O., succeeds **Mr. Carroll.**

A. J. McKillop has been made master mechanic of the Illinois Central at the Burnside shops. **G. M. Crownover** has been placed in charge of the shops, and office of assistant master mechanic is abolished. **V. U.** is made master mechanic at Freeport, Ill., and **F. W. Taylor** becomes master mechanic at Mattoon, Ill.

E. H. Harlow, master mechanic of the first district of the Albuquerque division of the Santa Fe, has been appointed master mechanic at Richmond, Cal., vice **A. B. Todd,** resigned. **W. A. George,** master mechanic of the second and third divisions, succeeds **Mr. Harlow,** at Albuquerque, N. Mex. **W. M. Daze** succeeds **Mr. George,** with office at Winslow, Ariz.

OBITUARY.

L. L. Smith, master mechanic of the Burlington at Beardstown, Ill., died September 29, aged 54 years.

THE FUTURE OF THE SANTA FE.

By E. P. Ripley, in the Santa Fe Employes Magazine.

My belief is that the future of the Atchison is indissolubly welded with the future of the country that it serves. We now operate in twelve states and territories containing hundreds of thousands of acres badly in need of additional transportation facilities. The Santa Fe has always stood ready to supply these needs as soon as conditions would justify a fair return on the money invested, and frequently thousands of dollars have been invested where no adequate returns could possibly be made for many years. A dozen branch lines in Kansas should be extended; Oklahoma should have hundreds of additional miles of railroad, as should also Texas, but when these states deliberately pass laws to increase the operating expenses of railroads and decrease their earnings to such an extent as to make it a most difficult thing to pay a small rate of interest on the money invested—when they resort to such measures as are well calculated to shake the confidence of the investing public to such an extent as to make it a matter of great difficulty to raise money for improvements and extensions—railroad building in these states must stop, not in retaliation but as a natural sequence. In the year ending June 30, 1907, the most prosperous in the history of the company, the earnings were but 6½ per cent on the total capitalization. In the year ending June 30, 1908, they were approximately 5½ per cent. Obviously this is not a safe margin, especially if we are to keep up the property and make those improvements which our patrons demand.

Before the blighting influence of the panic was felt last fall I made the remark that I would not advise the Atchison to spend any money for construction purposes in those states that had been actively engaged in passing drastic anti-railroad legislation. I was grotesquely misquoted and sarcastically censured for my statement, which was not made in a spirit of vindictiveness but which was merely the conclusion of a business man acting in the best interests of the property intrusted to his care. If by any good fortune there should be placed at my disposal a fund of $20,000,000 for the purchase of roads already built or for the construction of new lines or extensions, I could make my choice in twelve states in which the Santa Fe operates, and if your readers could see all the propositions that are from time to time presented to a road like the Santa Fe there would be no doubt in their minds as to the number of really desirable places in which the money could be invested. I would be false to my trust should I not endeavor to pick out those which offered the best and safest returns, just as one would be false to himself if he did not invest his savings in such a way as to bring the best and safest returns.

The construction of several hundreds of miles of road in Oklahoma had been recommended and work had already been commenced when the 2-cent law and other anti-railroad legislation made it not only expedient but absolutely necessary to drop the undertaking, and since then neither the Santa Fe nor any other road has built a mile of railway in that state—a purely business-like and logical outcome. The short line southeast from Texico, N. M., is awaiting construction, as are also several other projects, but who shall say when work will be commenced? The Atchison stands more than ready to undertake the work just as soon as it can produce the money and conditions in the country warrant a fair return on the capital invested. These conditions are subject to the will of the people.

All mail and business in connection with the Railway Journal should be addressed to the paper at 506 Royal Insurance building, Chicago.

MECHANICAL

GROWING DEMAND FOR STEEL COACHES.

Like the steel coal car, the all-steel passenger coach is growing in popularity. That means there is a demand for it to replace the wooden passenger equipment. The demand comes from the public as well as from the railways. Its durability and solidity assures the roads less expense in keeping in repairs and a longer life for service, and it insures the traveling public greater safety in the event of wrecks en route. These features alone are enough to encourage the construction and use of all-steel passenger cars. They are not seen in all parts of the country, but many will be surprised to learn that there are now between 1,200 and 1,500 constructed and in course of construction. It can be safely predicted that in the future, if financial conditions do not take a backset, wooden passenger coaches will be replaced, when wrecked or worn out, by all-steel passenger coaches on many of the larger lines. It is a question of more investment in the construction, but the service rendered and amount saved in safety of transportation of passengers will more than repay the extra outlay.

So far as all-steel passenger equipment is concerned, the recent order for 220 coaches by the Harriman lines is the largest order yet placed, though the Pennsylvania is building and has in service almost as many—208. The other roads having steel passenger cars are as follows: New York Central Lines, 191; Long Island, 185; Hudson & Manhattan, 50; Boston Elevated, 40; New York & Queens County, 40; 'Frisco, 31; Union Pacific, 17; Illinois Central, 17; Southern Pacific, 3. Quite a number of roads have from one to five steel coaches.

A WORD TO ROUNDHOUSE FOREMEN.

Editor of RAILWAY JOURNAL: I note in the November number of Railway & Locomotive Engineering an article relative to the formation of a Roundhouse Foremen's Association. I am unable to see what would be gained from the formation of such an organization from the fact that the membership of the Railway General Foremen's Association is chiefly made up of roundhouse foremen. The first two presidents of this association were roundhouse foremen, the present incumbent is a shop superintendent.

The matters discussed in the convention of the International Railway General Foremen's Association are practically those which apply to roundhouse management. The roundhouse foreman, as a member of the association above mentioned, has an equal voice with a member who is a general foreman or a superintendent of shops. As a matter of fact we welcome as members all shop foremen connected in the construction, repair or maintenance of locomotives without distinction of any kind. The subjects which are discussed at the annual convention are acted upon by the executive committee of the association, which is elected by its membership.

Possibly Messrs. Glover and Riddle, both writers of articles in the magazine above referred to, are not conversant with the facts which are as above stated. In view of the circumstances I am unable to understand what benefit the formation of a roundhouse foremen's organization would be to its membership that would not accrue from a similar membership in the general foremen's organization.

Certain it is that every ambitious roundhouse foreman desires promotion. His promotion would be along one of two lines, either to a district foremanship or to a general foremanship. Then why not identify himself with an organization which was formed in his interest and in the interest of every other man connected with locomotive repair and operation. If the International Railway General Foremen's Association can obtain the membership of all general, shop and roundhouse foremen it will be a greater power for the betterment of locomotive service in this country than would be two, three, four or more separate organizations along similar lines. An increase in membership in any one organization means an increase in the number of ideas which will be disseminated in convention and therefore an increase in the efficiency of that organization through this interchange medium. Yours truly, E. F. FAY,

President International Railway General Foremen's Association.

Cheyenne, Wyo., November 11, 1908.

EARLY HISTORY OF IRON AND STEEL.

By GEORGE H. WILLIAMS.

ARTICLE III.

Metallurgical authorities appear to be tolerably well agreed that iron and steel were known to the ancient Britons before their conquest by the Romans. Cæsar found them, on his first invasion, possessed of weapons made of these materials. Henry, on examination of all the evidences relating thereto, thinks it is abundantly evident that our British ancestors had discovered, or had been taught, the art of working tin, lead, brass and iron before being invaded by the Romans. In 1483 an act was passed against the importation of knives, hangers, tailor's shears, scissors, fine forks, gridirons and other articles of home production. This measure was taken upon a petition from the manufacturers of London and other towns, setting forth the injury they suffered by the importation of articles which they had manufactured.

In 1558 acts were passed by Parliament to prevent the use of timber in the manufacture of iron; the latter act provided that no new iron works should be erected within 22 miles of London nor within 14 miles of the River Thames, nor in the several parts of Sussex near the sea, the erection of any new iron works in Sussex, Kent and Surrey, and ordered that no timber of the size of one foot square should be used as fuel at any such works. Notwithstanding, however, the scarcity of fuel led to the passing of three successive statutes in restraint of iron trade, that industry continued to make considerable progress, and in the seventeenth century it had become one of the most important in the country. Improved methods of smelting, casting, forging, rolling, drawing, sharpening, polishing, Damascening and gilding, raised the cutler's art to a high state of perfection. A guild of London cutlers of Sheffield were incorporated in the time of Henry V. The cutlers of Sheffield were incorporated in 1624 that the persons engaged in the different departments of the cutlery manufacture may have support by their skill and dexterity in the said faculty, but have maintained their families and have small means of living other than by their hard daily labor.

Several writers have sought to elicit the early modes of manufacture practiced in England, but most of what has been published on this matter is purely conjecture. From the fact that the Romans' iron slags are always found on or near the top of a hill, it has been inferred that they did not employ bellows, but used the natural draught of the wind in so-called air bloomeries—that is, hollow dug out at the top of a hill with covered channels leading to the hillside in the direction of the prevailing wind which would blow through them in the fire, which was kept up with wood and charcoal. Iron ore being introduced in the burning mass, it is evident that this process was left in the slag, similar to air furnaces; however, they could not come up with the Furgeson furnaces of the present day, but for the days gone by for their use at that time was all right. Similar air furnaces were in use for the smelting of lead in Derbyshire as late as the seventeenth century. As soon as bel-

lows were introduced, about the eighth century, the smelting places became more independent and were removed to the valleys, where so-called blast bloomeries came into use, these having built-up walls which were gradually heightened to about 5 or 6 feet with a diameter of 3 or 4 feet, and thus became Wulf furnaces, such as were employed in America and Hungary until less than 100 years ago, and are in use at this day in Turkey and in India. These furnaces were made at first rectangular, but after the sixteenth century they were made elliptical, and in the eighteenth century they were of a circular section. However, they were not in a condition to produce a fusible cast iron, as they could only deliver lumps—wolves or pigs of half malleable wrought iron.

A quaint description of the method of producing steel by immersing bar iron in molten cast iron, published by the Vanoccis in 1540, indicates that at that time a considerable degree of proficiency had been attained in manufacture. But it is uncertain how far that advancement extended in England. There are not wanting indirect proofs for even so early a date as 1540. Nearly 200 years prior to this date cutlers and other workers in steel from the Netherlands took up their residence in Sheffield. We are without any information as to the degree of skill in their art was possessed by these artisans, but it is said that they have the credit from tradition of first establishing the shear steel in Sheffield. In 1770 Huntsman removed from Handworth to a point near Sheffield, Darnal, where he had constructed a more extensive establishment and where he pursued the manufacture of cast steel for five years, when he died at the age of 72 years. Before taking leave of Huntsman we may state that the merit of his invention was for a long time claimed by the French, and it was not until the play "Eminent Professor of Metallurgy," in the Ecole de Mines in Paris had proved by long and careful investigation that the invention belonged to Huntsman, that the claim made on behalf of France was set aside. Hence appears the fact that in 1784 England was relatively as much ahead of the other old nations in the production and value of her steel as she was in 1852. It is probable that she would have made more progress, but for the extraordinarily heavy duties then levied on imported steel by nearly every country in Europe. France imposed a duty on bars and on steel, and with tariffs so terribly hostile there is no wonder that English manufacturers had to place their dependence so largely on home consumption, or that the whole extent of their trade so recently as 1854 was represented by only 40,000 tons, being less than half the quantity of steel produced in more cases than one. From a single establishment, 23 years later, during the first half of the present century, modifications and improvements were made from time to time in the various processes of steel making.

Having, in the preceding chapter, traced the industrial development of the trade up to the time when the Bessemer process was invented, it will now be necessary to deal with the various processes proposed and adopted previous to the revolution the Bessemer system inaugurated. Neither Beaumun nor Huntsman claimed protection for their discoveries, and for all that we know about either we are indebted to others than patent office sources. The first patent applied for in this country in view of the manufacture of steel, was that of James Goodyer in 1771, 30 years after Huntsman had initiated his method of making cast steel. Goodyer proposed to place the pig or cast iron in the fire as when you intend to make bar iron. But the blast of the bellows must not be so strong. When some of the iron is sunk in the fire you must work from the bottom as when it may be fused and shingled and drawn as common iron. The fire must be kept as free from cinders as possible. The addition of common salt and other saline substances, also animal or charcoal dust improves the steel. After it is made as above it may be converted in the same manner as common steel is made from bar iron. This was not the first occasion on which it was proposed to use saline substances for the improvement of the quality of iron. The patent of John Payne, dated November, 1728, proposed to fuse with pig or saw iron, all kinds of glass and even sand, common salt, rock salt and potash, and from that day to this the inventors who have thought to revolutionize the iron trade by the application of physic have been legion. In 1791 Samuel Lucus proposed to bring the ore and bolt of iron into a metallic state without first reducing either of them to a fluid. In order to produce steel, this patentee recommended rich ores, such as Cumberland and Lancashire, should be put in small pieces in a melting pot with carbonaceous matter, charcoal, horn or bone dust or other cementing substances which may be mixed in bone dust, or may be mixed in almost any properties or in layers. Proportions of four bushels of cementing substances to a ton of ore were indicated. The melting pots were to be made air-tight and their contents molten in a furnace, the result promised was a metallic substance mixed with earth, the greatest part of which would be steel sufficiently converted for making into cast iron and may be run into ingots. The next patent relating to steel was dated November, 1800. In the first of the long and varied series that the Mushets, father and son, took out between the beginning of the last century and the present time the elder Mushet protected his inventions by five patents, the sons by upward of 40, 10 of which were registered in the year 1849. David Mushet's first patent provided for the manufacture of cast steel by fusion of malleable iron or of iron ore in crucibles mixed with a proper percentage of the carbonaceous matter. The specification is a long one, claiming a great deal and sometimes breaking into a sort of dissertation. He states that the general principles of his process are the fusion of malleable iron.

THE IDEAL ROUNDHOUSE FOREMAN.

To give in a brief space the full qualifications of an ideal roundhouse foreman is not an easy matter. The position itself is one that requires such diverse duties that it is hard to prescribe a set of rules that will regulate the man who holds it, even though he be a man of great versatility and unusually resourceful. In the October issue of the Santa Fe Employers' Magazine is an article from Mr. Thos. F. Ryan, not of Wall street fame, but a bright foreman on the Santa Fe at Silsbee, Tex., in which he gives some excellent ideas as to what he considers an Ideal Roundhouse Foreman. His paper is well worth reading by any railroad man. He makes a very sensible statement in his first paragraph when he says that "men do not grow too broad and deep for this position, for the position is as great as the man." We believe that every roundhouse foreman and every man who expects to fill that important position should accept Mr. Ryan's statement above as an axiom and be governed by it. There are many other good thoughts suggested by Mr. Ryan, and we give his paper in full, which is as follows:

In all the groups of men entrusted with the affairs of a great transcontinental railroad system, none plays a more important part than the roundhouse foreman. Men do not grow too broad and deep for this position, for the position is as great as the man. In a discussion of the qualifications possessed by the ideal roundhouse foreman and the details of his work there are two vital subjects for consideration: Efficiency and expense.

In building up an efficient plant it goes without saying that the foreman should possess a thorough knowledge of railroad work in all the varying phases in which it is presented to him daily. Usually, having risen from the ranks of the force of mechanics, he should be a thorough workman himself, that he may be able not only to instruct all mechanics who are under his supervision but may command the respect of the journeyman together with the gray-haired engineman who has spent a lifetime at the throttle.

Reversing the usual order, I might say that a knowledge of men is equal to, if not even more essential than, a knowledge of a trade, for truly the roundhouse foreman deals with a wide range of human nature. Some men he must lead, others encourage, while still others—if you will pardon the word for want of a better one—he must coerce. Across his face, like an April sky, must flit the bright ray of a commending smile, while the next moment appears the dark cloud of disapproval. And here I would present another thought: In checking up the shortcomings of his plant he must eradicate the evils, not merely suppress them. He is making but poor headway if he must tell his men repeatedly to do or not to do a given thing. Once should be sufficient, and if his subordinates come to know him as a strict disciplinarian but one who is always wise and just, they will respect him and, respecting, will approve. They must realize that he expects and will have a fair day's work for a fair day's pay, and that he is handling his employer's business with the eager interest that he would manifest if it were his own, and they will agree that the private employer will not tolerate a loafer.

The ideal foreman will endeavor to promote the efficiency of his men by a systematic education, teaching them to economize time in every possible way, to handle their work with

the least exertion to themselves and, by eliminating various losses, to increase the output. If the various losses in time around the average plant could be eliminated the efficiency of the plant would be increased in a measure that would be astounding to the foreman and the men. By this I mean that if each workman could be taught to study his work, with a view to dispensing with all unnecessary moves, he would increase his efficiency 40 per cent with less exertion to himself.

A foreman cannot expect to instill in his men enthusiasm for their work unless he feels it himself, and this spirit which the ideal foreman would inculcate must be tingling through him to his very finger tips. Every man will make mistakes, but the wise man, whether he be foreman or otherwise, will profit by them and, daily checking up the routine of his work, will note his failures and, noting, cease to fail. The efficiency of a roundhouse foreman, then, depends on intelligence and system of action, degree of interest and discipline of force. These, brought to a high standard, will give a thoroughly successful plant, provided, however, that the other subject, expense, has not been forgotten.

The two lines, efficiency and expense, should be constantly diverging—the one up, the other down. The former is forced up by intelligent, systematic action, system to every movement, no matter how trivial; by that lively interest that is quick to note the good in men and, handling it intelligently, turn it into use, and by that firm, fair discipline that teaches men that instructions must be obeyed. There are a thousand ways in which the latter line may be lowered by the roundhouse foreman, and nine hundred and ninety-nine of them are under the caption of "running repairs."

Of all the various classes of repairs none is more important—we may say none is so important—as the class just mentioned. An engine, no matter how thoroughly overhauled, will last but a short time unless given close attention in the matter of small repairs. And this depends solely on the roundhouse foreman. To this end, then, he should guard his engines with a jealous eye and exercise eternal vigilance in keeping up running repairs. The loose wedge or the blowing piston if repaired today is good for many a mile, but tomorrow we have a broken drawing box or a cylinder knocked off because a signal could not be seen, and it is then eternally too late.

He must systematize his work and not approach it in a haphazard way. For instance, locate with this man or group of men the responsibility of looking well to the spring rig, intelligently directing their efforts, and what is the result? He has lessened spring breakage; the springs are performing their proper function and hence are prolonging the life of the engine between shoppings, and no boilers are being ruined by neglected spring rig. Likewise with his lubrication, looking closely to the condition of his oil cellars, oil cups, etc., with the result that failures from hot bearings and the cost of lubrication will alike diminish. And so on with his valves, his rods, his cab work and his air work. He must systematize, intelligently direct and, let me add with emphasis, he must inspect. He must know the condition of his engines in order to intelligently apply his efforts.

The roundhouse foreman has practically placed in his hands thousands of dollars' worth of material, and he should be very careful in its issue. How often is a new set of piston rod packing applied when one ring added to the old set would have made a better job! How often is an expensive rod brass drawn to replace a broken one, simply because the old one was not given proper attention at the proper time! How often is a rod bolt ruined when removing it, requiring an expenditure of material and labor to replace it, which would have been avoided had it been properly fitted and oiled when first applied! How many times is a new feed-water hose applied simply because the old one was permitted to chafe against a hanger till it was ruined! How often is a new cylinder or an expensive patch required simply because a cracked cylinder head or a main rod clearance was neglected! How often is a new truck wheel necessary because the old one was let out! How often does an expensive break-in-two occur just because lost motion was let go! How often, if we may use the second person, does your employer pay $25 for a pilot because you let the old one run an inch too low! And so we might go on indefinitely.

The ideal foreman will, if he finds leaky steam pipes, grind them and save his fuel and his flues. If the valves are out he will set them and save his machinery and his coal and pull and haul the maximum load over the division. If his lubricating cost is high he will place his lubricating devices in the highest possible state of efficiency and educate his men to economize in the use of oil. If his engine-mile repair cost is too high he will not rest until he has found the cause and, by removing the cause, remove the effect. I said before that there were a thousand ways for the roundhouse foreman to better conditions, but time and space forbid dealing with them in detail. In fine, the motto of the ideal roundhouse foreman is to keep his engines up and the expense down, and the latitude he gives these two points will mark the boundaries of his approach to the ideal.

One thing more—but because it is last it is by no means least. He must be methodical, prompt and, above everything else, exact in handling the records of his office. With a great railroad there will be a voluminous system of accounting, and a great deal of this accounting depends for its accuracy on him. He should have a check on all things and have it easily accessible. And in connection with this he should be absolutely sure to conform to the instructions of his superiors, remembering that the plans of his superiors can only succeed by being faithfully carried out, also remembering to never practice the habit of criticism. How often do we hear opinions expressed when, if the speaker would place himself in the position of the criticised party, the condemnatory word would lie unspoken on the lips. True he must be quick to "detect the sophistries practiced by those who see unfair advantages," to the end that he shall bear his own burdens and those only.

And now for our friend the foreman we have traced no life of ease. For him there is no life of dreams. No poetess of passion scatters flowers for him. The Sabbath bells ring out to call his tired soul to adoration. From the first gray of coming dawn, when he rises with the lark, till the twinkling stars shine out ere he seeks repose, he is posted on the very front of the commercial firing line. He stands like a general on some hill-crowned eminence watching his line of battle and ready to fling his hosts to the weakest point. Does a wreck occur with all its sickening horrors—'tis he provides relief. Does a heart-broken husband, in answer to a sudden telegram, desire a wild ride to the bedside of a dying wife—it's up to the roundhouse foreman. If it is the movement of a box of toothpicks or an army, it still devolves on the roundhouse foreman. But if the way grows rough and the night dark let him take courage and consolation from the fact that the very life of the world today depends on transportation, that the base of transportation is its motive power, and that the bright particular star about which the whole system revolves is this same meek and lowly roundhouse foreman.

MODERN SHOP CONSTRUCTION.

At the recent convention of the International Railway General Foremen's Association the following papers were presented on "Modern Shop Construction—Cross Pits or Longitudinal," etc. Paper by E. F. Fay, Union Pacific, Cheyenne, Wyo.

It appears to be the tendency at the present time, particularly on large railway systems, to construct shops with repairing capacity for locomotives of from 30 to 60 or even 90 engines a month, whereas the shops which were constructed prior to 1900, we will say, ordinarily had not more than 10 pits and a capacity of from 16 to 25 engines per month as they run and depending, of course, on the number of men employed.

In comparing the output of the average large shop with that of the average 10-pit shop, we find that even under the most efficient management that the work deteriorates in the larger shop. There must, of course, be a reason for this, and to my mind the reason is not hard to find. While I favor centralization of work as far as possible, I do not believe that there is the same relative efficiency in the larger shop that is obtainable in the smaller one, and for this reason: Primarily, in the small shop a foreman will supervise the work and inspect the output of from 20 to 35 men, all of whom are in a necessarily contracted area. It is possible for him to see from nearly any point in his shop every workman in it. This is an advantage, as all would readily admit. In a large shop it is not ordinarily possible for a foreman to exercise this personal supervision, as sometimes the number of men under one foreman will exceed 70, distributed

over a wide area. Thus it is not possible for a foreman to come in personal contact with each employe sufficiently to insure maximum efficiency. This is particularly true of the erecting floor, and applies more particularly to shops in which each gang has a certain part of the work to do on each locomotive. Adequate supervision under such circumstances is almost impossible; of course there is apparently an advantage in the large shop in the supervision which is saved by having a fewer number of foremen to supervise the work of the plant. I do not consider this at all an advantage and I believe that a comparison of the work turned out of a modern 10-pit shop under good supervision and the work turned out of a modern locomotive shop with a capacity of 45 engines a month, considering the mileage made by the locomotives in both cases between shoppings, and the cost per mile of each locomotive between shoppings will result in favor of the small shop with its necessarily closer personal supervision and closer inspection.

The Large Shop Cross Pits or Longitudinal Pits—Which Are Preferable?

Personally I believe in the cross pit, for a variety of reasons. In a shop constructed with cross pits it is possible to hold one or two at one end for the stripping from which the engine (with wheels removed) may be set to any other pit with a single crane. Thus eliminating the necessity for using two heavy cranes every time an engine has to be moved, as is the case in a shop of any other type of construction. With a cross pit shop your wheels may stand out of doors behind the engine, their driving boxes may be fitted (if this has not already been done on the machine side), cellars packed, front and back sections of side rods put up and the wheels put in readiness to roll under the engine without using a crane at all and without moving the wheels here, there or elsewhere, which is practically dead labor. This cross pit is certainly an advantage from the fact that all material necessary in repairing and reconstructing an engine has to be moved but twice, from the stripping pit to the point of repairs, and from the point of repairs to the engine. Distances in a shop of this kind are shorter, foremen are closer to their men; therefore the supervision is more intimate and better results are to be achieved. I am not at all in favor of a shop with longitudinal pits, as I consider it a tremendous handicap. Another criticism of the modern tendency which I would make is inadequate lavatory and toilet facilities. These most necessary features of modern shop construction receive the least attention at the hands of those intrusted with the designing and arranging of the buildings. More time is lost by employes going to and from distant lavatories in the great majority of modern shops than one has any idea of. Twenty minutes from work to work on a trip of this kind is not at all extraordinary and on investigation has been found, in most cases, to be really legitimate and necessitated by the inadequacy of arrangements. Ordinarily shop cupboards are placed in lavatories for the employes. I have never yet been in a shop where the ratio of cupboards was nearer than one to two to employes. Why not have enough? All of these criticisms tend to directly increase the advantages to be derived from small shop construction. Ordinarily the criticisms above mentioned which would hold good with the larger shop construction do not obtain with the smaller. Then again it is the tendency of the present time to centralize the manufacture of locomotive repair parts and tools used on railway systems in some one or two plants on the system. This manufacturing work carried on in conjunction with repair work in one shop results to the disadvantage of the repair gang or to the disadvantage of the point out on the line that is waiting for the material. It doesn't work properly. It seems as though it would be wise to centralize the manufacture of repairs in some one shop where no repair work whatever is done. Conduct a manufacturing shop pure and simple and good results will be obtained; in fact, the same results that a commercial manufacturer gets, because there is nothing to distract his attention from the new work on hand. I also believe that even in the centralization of manufacturing (which is distinctly an advantage) that all the manufacturing should not be done in the one plant. There are a great many times when the work doesn't balance, when the erecting floor is waiting for the machine side or the machine side is not crowded owing to the conditions on the erecting floor, which are unavoidable and cannot be foreseen. Then each shop should be allowed two or three, or possibly more, specialties of manufacture. For instance: Take one of the outside shops of a division on which are operated a number of engines of one class. Let us say then that this shop be allowed to make and furnish, for local or general consumption, piston heads, piston rods, main rod brasses and wrist pins in the rough for this one class of engine. This work to be sandwiched in between jobs and at odd times in order to secure to that shop the maximum labor for each man employed all the time. I consider that an arrangement of this kind could not but result advantageously. Very few modern shop builders seem to appreciate the benefits to be derived from industrial railways (with curves and switches always, rather than turntables) on which may be operated storage battery electric locomotives with which to handle the narrow gauge cars that are used. The saving over the old method of push cars with men as the motive power will be something enormous, and there is no place where the small industrial cars may not go. The installation of a sufficient number of cranes in every shop is of prime importance. The time that an employe waits for crane service is absolutely lost. I have no doubt that in almost any modern shop and certainly in the majority in which I have been, the time that is lost would pay for an additional crane and its installation in one year.

I have endeavored in this paper to cover the principal points of difference between the small and the large shop and some of the faults of the large shop as well. Trusting that the paper may bring out some points which will be of interest to future shop builders and therefore of benefit to those intrusted with their management, it is placed before you for such consideration as you choose to accord.

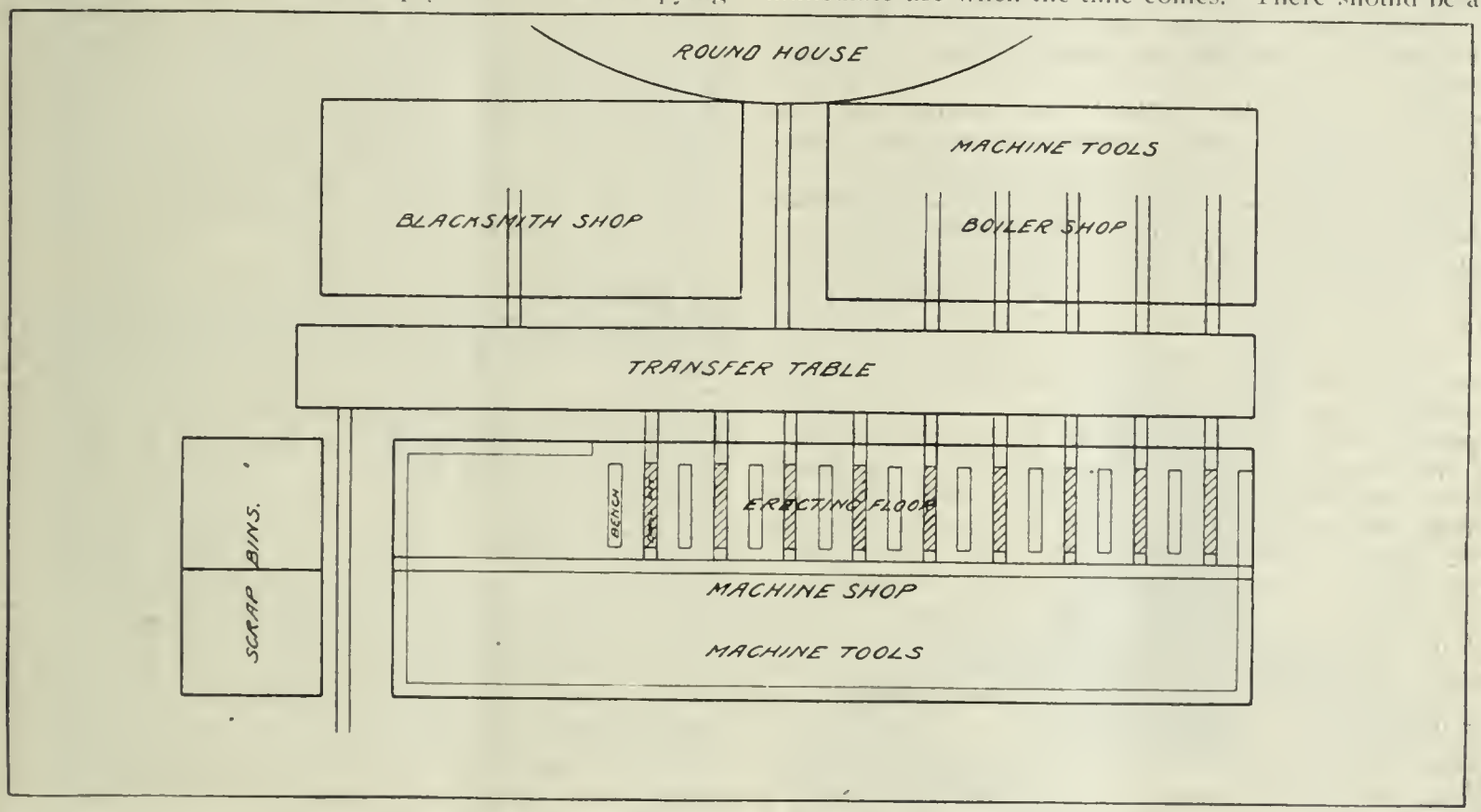
Paper by L. H. Bryan, D. & I. R., Two Harbors, Minn.

In bringing out a paper on this subject the writer believes that the Machine, Boiler, Blacksmith Shops and Round House should be considered as to their location to each other and the equipment of same, so as to give the largest output most economically.

The buildings should be large enough to take care of the business of the division system. On about one-half of the railroads in this country you will find the shops and roundhouses entirely too small for the volume of business done, and in consequence it puts the roundhouse and all other foremen at a decided disadvantage. The shops should be equipped with a suitable number of traveling cranes; no shop is modern without them. As to

cross pits or longitudinal pits there is no doubt in my mind which is preferable; with the cross pits the engine can always be taken in and out of the shop without any delay; can also be transferred to and from the boiler shop without causing a delay to any engine in the machine shop. With a longitudinal pit it would be necessary to transfer the men onto other work until the engine desired to be shifted was out of the way and the rest put back in their places. With cross pits the work is centralized for the machines.

Herewith a sketch showing the location of the different shops, which I think would be a modern affair, with the blacksmith and boiler shops in close proximity to the roundhouse, all running repairs to engines could be handled expeditiously. As a general thing you will invariably find these two shops especially tucked away in some remote corner of the shop yard, or else occupying



L. H. BRYAN'S IDEA OF SHOP GROUND PLAN.

a valuable corner in one of the larger shops. The machine and boiler shops should be wide enough so that the machines could be placed on one side, in such a position as will be most convenient for the class of work intended for them and still leave ample room for the handling of flues taken out of the boilers, without opening the doors or interfering with the machines or the placing of material at the machines. Only light boiler work should be done in the machine shop; heavy work interferes with the work of the machinist, and I know that the company does not receive the capacity of the shop if the machinists are compelled to work in the continuous noise made by air hammers and general or heavy boiler work.

It is also very important that the shops be well ventilated and lighted. Money spent in extra windows is a good investment and gives more returns than figures can tell. Another very important thing is to keep the shops well cleaned at all times. I believe it is economy for the company to employ enough sweepers to keep the shop clean and in good order at all times; as cleanliness is next to godliness, it is the prime mover in the shop as well as the office; the man in overalls, either at the vise or on the machine, appreciates your endeavors in that direction and will show it in the work performed.

There should be ample room between the pits for work benches placed parallel with them, for it is more convenient to do the work on the engines with benches in this position than if they were placed at one end or against the wall between the doors. The benches should have racks in the center to hang pipes and other material on, and have a suitable number of drawers for the men to keep their tools handy for the work; if the benches are built right, there will be enough shelf room so that all small pieces from the engine can be properly taken care of and kept off the floor, and the very small pieces can be placed in the drawer, properly tagged, ready for immediate use when the time comes. There should be at least four vises to each bench, two on each side, spaced alternately. The lights should be placed in the center of the benches, lengthwise, in clusters. I find that three four-light clusters on each bench gives a good light. The wiring should be done so that each bench cluster could be turned on or off at will; suitable places provided for attaching extension plugs; these give better satisfaction than candles or torches. I also believe that each machine should have one or two incandescent lights; one should have a flexible connection, so that the workman can adjust it to the best advantage in doing his work.

In having a modern shop we must not lose sight of the very important factor of having modern and up-to-date machines. The best are none too good. Experience has taught us that there is no investment which pays better dividends than to discard the old machines and replace them with new, up-to-date, high duty ones; we also know that when the company erects an up-to-date shop they expect in return an up-to-date output, and this cannot be accomplished on old, antiquated machines. Labor, at the present time, is very expensive, and the difference in

time used in doing a job on the old-style machines to what it can be done for on the best tools will show an enormous saving in cost of output, to say nothing of delay time to the erecting floor. A small traveling crane should also be installed over the machines to serve them; this would also increase the output.

The tool room should be placed in the center of the shop, lengthwise, and a full supply of tools kept constantly on hand, so that no delay would be caused by waiting for tools. A competent man should be placed in charge whose duty would be to see that all tools, wrenches or appliances were returned to the tool room at the end of each day; to have repairs made to such tools which had become broken or damaged; to keep an accurate account of the condition of all contained in the room, and to know who gets the tools from the tool room. This should be done by a system of checks.

Another very important feature in modern shop construction is to provide the shop foreman, shop superintendent, erecting foreman or by whatever title he may be called, with a suitable office in some central part of the shop and built in such a manner that he could glance from one end of the shop to the other without moving from his work. While I believe that this same foreman should spend his time among the workmen, there are times when considerable office work falls to his lot and this must needs be done in a clean, respectable place. This office should be supplied with telephone connections to all shops, thereby saving the foreman many extra steps and the company many dollars paid out in wages to those who would take advantage of his absence and spend a "fiver" or two telling his fellow workman what a nice time he had at the dance last night. He should have convenient shelves and drawers built inside the office; the shelves for mechanical books and catalogues; the drawers for blue-prints laid flat; some smaller drawers for correspondence, of which, in his career with the company, a great deal will accumulate. A good, clean office, dust proof and sanitary, supplied with wash bowl, adds dignity to his position and he may command more respect from the workmen under his charge than if the company furnished him with an open affair in some remote corner of the shop, or nailed up a board along the side wall just about large enough for him to write shop orders on. Wash rooms and lavatories, if there is ample ground room, should be placed conveniently near the shop, plentifully supplied with wash basins and lockers. Towels and soap should also be furnished by the company. Sanitary metal lockers are the only kind I would recommend and these should be placed on the same floor with the wash bowls. If there is no ground space available, they should be suspended from the roof. A man placed in charge who would keep it clean, clothed with authority to keep out loiterers.

As to the handling and storing of materials, I can say very little at this time. This subject is a live one and should have been by itself. The method employed by the Duluth & Iron Range Company is a good one, but can be improved upon, for no system is perfect. I will leave this question open for discussion.

SAFETY VALVES FOR LOCOMOTIVE BOILERS—SIZE AND CAPACITY.

The following is taken from a committee report presented at the recent convention of the Master Mechanics' Association:

No uniform practice seems to have prevailed in the past in proportioning safety valves to the work they are to perform. The locomotive builders follow specifications of the railroad companies, and it seems to have been the practice of the railroad companies to base their specifications on what has been done before on similar locomotives. The various railroad companies have fallen into the practice of specifying so many 2½, 3, 3½ or 4-inch valves, which, when reduced to exact language, does not mean anything definite. Obviously, two 3-inch valves having a sustained life of ⅛ inch have a greater capacity for the discharge of steam than eight 3-inch valves having a sustained life of 1/32 inch each. The committee does not wish to convey the idea that the two 3-inch valves having a sustained lift of ⅛ inch are better for the boiler than eight 3-inch valves having each a sustained life of 1/32 inch. It simply wishes to point out the errors that may arise from the practice of specifying so many valves regardless of the sustained lift.

Perhaps the most important part of any investigation should be the determination of the proper amount of evaporation which the safety valves shall be called upon to relieve. We already have information as to the maximum evaporation of locomotives from the tests at St. Louis in 1904, but the committee feels that the safety valves would never be called upon to relieve this amount from the fact that the combustion in the fire-box is stimulated by the exhaust, and that this exhaust is caused from the use of the steam in the cylinders, so that, at a time of greatest evaporation, the steam is being used approximately as fast as it is generated. Hence, it remains for the investigators to determine what shall be deemed the proper amount of relief in safety valves. Then, too, the lift of valves of various sizes at the different pressures must necessarily be determined, as also the effect of this lift on the life of the valve seats and the tendency the lift of the valves may have to raise the water in the boiler.

It is no less important that some data be collected on open and muffled valves, and in this connection, considering the tendency of the muffler to retard the flow of steam through the valve, it is of importance that we review the work of Mr. Brownlee on the flow of steam through an orifice, which is contained in a "Report on Safety Valves" in the transactions of the Institution of Engineers and Shipbuilders in Scotland, Vol. XVIII, 1874-75, page 13. In this report Mr. Brownlee has compiled some data on the rates of discharge under a constant internal pressure, into various external pressures, upon which D. K. Clark, in his work on the steam engine, bases the following statements: "The flow of steam of a greater pressure into a receiver of a less pressure increases as the difference of pressure is increased, until the external pressure becomes only 58 per cent of the absolute pressure in the boiler. The flow of steam is neither increased nor diminished by the fall of the external pressure below 58 per cent, or about four-sevenths of the inside pressure, even to the extent of a perfect vacuum. In flowing through a nozzle of the best form, the steam expands to the external pressure, and to the volume due to this pressure, so long as it is not less than 58 per cent of the internal pressure. For an external pressure of 58 per cent and for lower percentages, the ratio of expansion is 1 to 1.624."

From the foregoing, one is led to believe that the muffler produces no appreciable retarding effect on the safety valve. The committee feels that this should be verified in present practice.

As stated, it is essential that the amount of evaporation that the safety valves should relieve be determined. This can best be determined by applying two safety valves of known diameters and lift, which, according to the empirical formula, are known to be a little small. A third valve, of a larger diameter and set to pop at a somewhat higher pressure than the smaller valves, should be applied as a means of protection. If at any time during the test the two small valves go into action and the boiler pressure rises above the popping point, it would be reasonable to assume that the valves were of insufficient capacity. Another trial with valves of a larger diameter would no doubt prove of sufficient capacity. By changes in this manner it would be possible to apply two valves of sufficient capacity, and the diameter, lift, and form of valve being known, it would be a simple matter to obtain the amount of evaporation that the valves were called upon to relieve on the particular type of locomotive in question. It is important in this connection that the observation of pressures be very accurate, and the committee would suggest that a pressure-recording gage be attached to the boiler to serve as a check on the observer. Perhaps the most reliable method of determining the lift of the valves would be to attach a rod to the top of the valve stem. This rod could be connected to a lift-recording gage and also to a lift-recording mechanism,

operated by a small motor, which, while recording the lift on the card, would also record the time element. This mechanism would give an accurate check on the gage observations. It is understood, of course, that the lift measurements be made in the shop.

During the past few months the committee has been collecting data from the various railroad companies in order to arrive at some definite conclusions regarding existing practice. A letter of inquiry was also addressed to the various valve manufacturers and to the locomotive builders. The replies from some twenty railroads show that the safety valves now in use are of sufficient capacity, and on these reports the committee has based the calculations that are to follow. The records from twelve important roads show that the lift of the valves varies from .1/32 inch to 1/10 inch.

Taking the mean effective area of opening in square inches per 500 square feet of heating surface, based on existing average practice of twelve railroads, we have developed the follwing empirical formula:

$$A = \frac{0.10266 \times H.S}{P}$$

Where A equals the effective area of opening of the valve in square inches, H. S. equals the heating surface of boiler in square feet, and P equals the absolute pressure, or gage pressure plus 14.7 pounds. The formula is based on an evaporation of 5.28 pounds of water per square foot of heating surface per hour, and it is recommended for use in the application of safety valves until such times as it is shown to be in error or, upon future investigation, a better one shall have been devised.

The valves of nine prominent valve manufacturers show a lift ranging from .03 inch up to .15 inch; taking an average of these lifts (0.087 inch) and working out the values for typical modern switching, freight and passenger locomotives, the following tabulation is given illustrating the application of the empirical formula:

Type of locomotive.	Service.	Heating surface, sq. ft.	Gage pressure.	No. and size of valves.
Pacific.....	Passenger....	3,500	200	3—3½ In.
Consolidation	Freight.....	3,200	200	3—3½ In.
6-wheel switch	Yard.....	1,900	200	2—3½ In.

In this tabulation it will be seen that the number and size of safety valves for the Pacific and consolidation type locomotives are the same. It is recommended that the railway companies adopt one standard size of safety valve for all their locomotives, and not have, say, two 3-inch and one 3½-inch valves on the same locomotive. The adoption by railroads of one size of safety valve for all locomotives will bring about a uniformity that is much desired. The valves shown in the tabulation are assumed to have 45 degree seats.

AMONG THE SUPPLY FIRMS.

John W. Mute, president of the St. Louis Car Co., died on October 6 at Portland, Me. Aged 4 years.

The S. Flory Manufacturing Company, of Bangor, Pa., has received orders from Cuba for a special hoisting engine and cableway equipment.

An attractive pamphlet describing the application of the Janney couplers has been sent out by the McConway & Torley Company, of Pittsburg.

The Railroad Supply Company, of Chicago, has been sending out a pamphlet to describe its style F lightning arrester for telegraph, telephones and signals.

Messrs. Frank T. Winslow, I. L. Miller and S. B. McEldowny are the incorporators of the Chicago Steel Car Company, of Chicago. Capital stock is $50,000.

James A. Greer has been appointed in charge of the San Francisco office of the Rail Joint Company, of New York. Mr. Greer has his office in the Call building.

Walter Macleod & Co., of Cincinnati, have issued catalogue No. 100, which is illustrated and treats of many valuable devices that are of interest to railway officials and foremen.

The International Railroad Supply Company has been incorporated by Messrs. P. P. Shaw, Garrett Brown, J. L. Babler, J. M. Butcher, C. L. Shaw and Bailey Wilkinson, of St. Louis.

The H. Turner Tool Company, of South Clinton street, Chicago, has issued a circular showing something new in drill sockets and lathe dogs which is of special interest to railway shop men.

The W. K. Kenly Company, of Chicago, has issued a pamphlet descriptive of a list of track specialties handled by the company. This company has splendid testimonials from those who have used its devices.

The Bettendorf Axle Company, of Chicago and Davenport, Ia., has been awarded the contract for steel underframes, cast steel trusses and bolsters by the Chicago, Milwaukee & St. Paul, for 2,500 gondolas of 100,000 pounds capacity, and for 5,000 box cars of 80,000 pounds capacity. These orders were all placed in October.

The Raymond Concrete Pile Company, of New York and Chicago, through Charles E. Uebelacker, chief engineer, Metropolitan Street Railway Company, has been awarded a contract for placing Raymond concrete piles in the foundations of the new car barns that are to be erected at Fifty-fourth street and Ninth avenue, New York.

The Mechanical and Manufacturers' Club, of Atlanta, Ga., has been incorporated by the following engineers, mechanical, manufacturing and railroad men: G. E. Watts, I. T. Rose, J. J. Disoway, Harry D. Winn, J. O. Bailey, W. H. Glenn, E. E. Eagan, W. H. Taylor, C. S. Campbell, E. A. Werner, S. R. Jacobs and George Bird, all of Atlanta.

HEATER FOR RAILROAD SHOPS.

The accompanying illustration shows the latest design of compressed air oil heater for repairs of all kinds where heating is required. It has the strong endorsements of most of the leading railroads and is the result of over 15 years' experience with oil burners. The manufacturers, Walter Macleod & Co., of Cincinnati, Ohio, are the oldest established firm of these heaters and it can be relied upon that their heater, termed "The Buckeye," will give entire satisfaction to all users and will be exactly as represented, thereby being the standard tool for this class of work. It is especially adapted for repairing bent portions of steel cars and locomotives and the work is so well performed at the very lowest expense that the makers well deserve the many favorable comments they receive. This outfit should appeal to all who have work of this description, as a better machine could not be included in their repair shops where economy is desired and by getting the catalogue from the makers with the many excellent testimonials you will find that you cannot afford to be without this tool. Anyone desiring further information can secure same by addressing the above company.

The Raymond Concrete Pile Company, of New York and Chicago, has been awarded the contract for placing Raymond concrete piles in the foundations of a machine shop, warehouse and stables that are being built for the Ford & Kendig Company, at Twenty-fourth and Wood streets, Philadelphia.

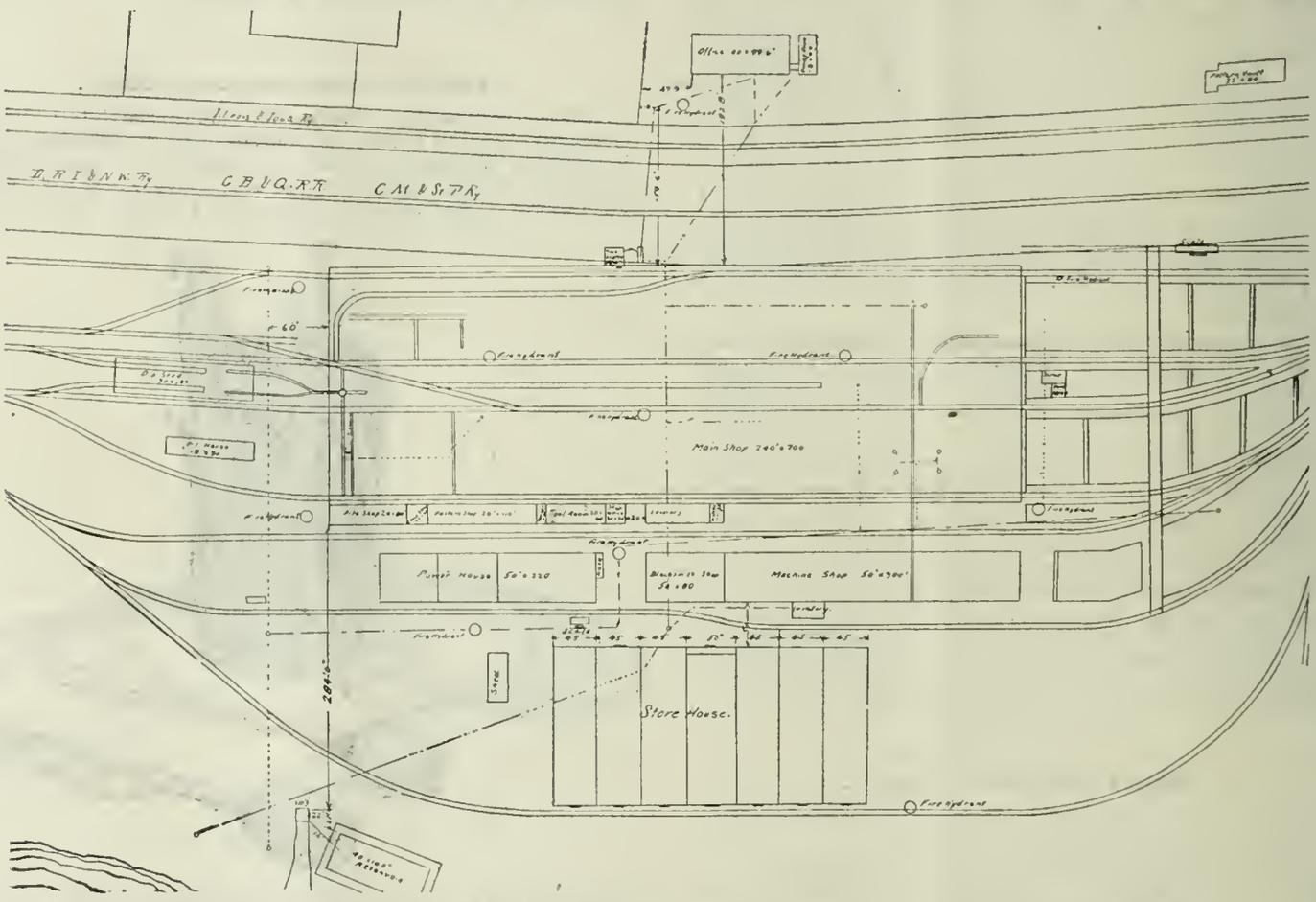
A MODERN STEEL CAR PLANT.

The shops of the Bettendorf Axle Company, one of the progressive industrial concerns engaged in the manufacture of car equipment and the building of all-steel cars have been gradually extended in the past few years to enable the company to handle its growing business. The new site at Bettendorf, a suburb of Davenport, Iowa, covers an area of 70 acres, which are rapidly being utilized for manufacturing purposes. The layout, shown herewith, gives the arrangement of buildings and tracks which facilitate the operation of the plant.

The main shop of the plant, a building 700x240 feet in size, contains perhaps the most complete hydraulic plant in the country. All, or nearly all, of the shaping of the car parts is accomplished by the aid of hydraulic presses, of which there are upwards of sixty, varying in capacity from fifty to eighteen hundred tons. Some idea of the power developed can be gained when it is stated that in the largest of these presses 24-inch I-beams are shaped cold, i. e., the ends are reduced and the beam is otherwise shaped and punched in various places without being heated; and all the smaller car parts, except the castings, are shaped and prepared for use in the same way. All special hydraulic machinery used in this plant was designed and built by the company. Aside from the complete hydraulic plant, and in connection therewith, the works contain a full complement of other machinery operated by electric power and compressed air. There are eleven traveling cranes of varying capacity, which are electrically operated and enable the rapid assembling of the car parts. They were furnished mainly by the Pawling & Harnischfeger Company and the Cleveland Crane Company.

Much of the riveting (of sheets particularly) is done by compressed air, and this power is also made use of in finishing most of the car parts. A sand-blasting apparatus for cleaning the sheets and other parts of car, preparatory to painting, has been installed and is also operated by compressed air. A complete electric light plant furnished light for the shops as well as for the office building some little distance away. The operation of the main shop is from east to west. The hydraulic presses are located in the east end where the bolster and car parts are shaped and punched. The car and bolster riveting departments are in the west end of the shop. The castings are brought from the storehouse, south of the main shop, into the center of the shop where they are riveted to the steel bolster and car parts. The body and truck bolsters, steel underframes and all-steel cars are assembled, painted and shipped from the west end. Immediately south of the main shop is the power house, 80x120 feet in size, part of which until recently was utilized as a machine shop. The six horizontal boilers, with an aggregate capacity of about 1000 h.p., are in the west end of the building, and the engine room adjoining contains the pumps and machinery. Still further to the south and east are the extensive storehouses for the material, covering an area of several acres, and to the west is the paint shop and other minor buildings in a group by themselves. The D. R. I. & N. W. Ry., the C. M. & St. P. Ry. and the C. B. & Q. Ry. run through the manufacturing tract and excellent switching and yard facilities, including 4 tracks, running through the main buildings, have been obtained. Locomotive cranes facilitate the loading and unloading of materials in the yards and shops.

The machine shop, as has been stated, was until recently located in the power building, but the available space proving entirely inadequate for the purpose, it was



ARRANGEMENT OF PLANT OF BETTENDORF AXLE COMPANY, AT DAVENPORT, IOWA.

last fall decided to erect a new machine shop directly east of the power house and south of the main shops. The new machine shop is a building 5x380 feet in size, of which the west 80 feet will be utilized for the blacksmith shop, leaving the size of the machine shop proper 50x300 feet. The office building of the company has also recently been enlarged by the addition of a second story, which will give more ample room for the rapidly increasing clerical force; and judging from the developments of the past it will not be long before we will be in position to call attention to further improvements and additions to the already big plant of this striving and flourishing corporation.

To give an idea of the progress made by the Bettendorf company in the manufacture of railway equipment, it may be stated that starting in about ten years ago with the production of the I beam bolsters in the old Davenport plant, there has since been added the manufacture of the Bettendorf steel car underframe, the cast steel truck with integral journal boxes, and finally complete tank and freight cars. Of the bolsters there are now over half a million in service, and the Bettendorf ideal car truck with the one-piece frame is rapidly being adopted by the leading railway systems of the country. The tank cars of the Bettendorf type have been furnished to upwards of forty private car lines, and with the present year the manufacture of complete freight cars on an extensive scale was commenced. Just recently the shops turned out an order for 1000 gondola cars for the C. B. & Q. Ry. which car was described in a recent issue of this Journal, and at the present time an order for 2,500 steel underframes for the Chicago, Milwaukee & St. Paul Ry. is going through the works at the rate of about 25 per day. To give a further idea of the capacity of the plant at the present time, it may be stated that it can turn out 25 complete cars or 40 steel underframes in a day, and further contemplated improvements will largely add to this capacity.

MAIN SHOPS OF BETTENDORF AXLE COMPANY, DAVENPORT, IOWA.

POSITION WANTED.

Position wanted by railroad blacksmith foreman. Am familiar with improved machinery. Can handle air-hardening steel. Address Blacksmith Foreman, RAILWAY JOURNAL.

BALANCE OF THIS YEAR FREE.

Those who subscribe for the RAILWAY JOURNAL this month will receive it till January, 1910, for $1; the rest of this year free.

OPPORTUNITIES FOR FOREIGN TRADE.

The following information has been furnished the RAILWAY JOURNAL from the Bureau of Manufacturers at Washington, from which further information may be secured:

A report from an American consul in Africa states that tenders are invited by a certain municipal corporation for the installation of an electric lighting system for the purpose of lighting the streets and public buildings. The streets are to be lighted partly by arc and partly by incandescent lamps, charges to be reckoned per 1,000 volts. Apart from the churches, schools, colonial, imperial and naval buildings, it is thought that owners of many private houses will avail themselves of the opportunity of entering into arrangements with the successful tenderer. All tenders should be sealed and forwarded to a certain official so as to be received not later than November 1, 1908.

A business firm of excellent reputation in a city of western Europe advises an American consular officer that it desires to secure the agency for the sale of American paraffin oil and lubricating oils in that region. Communications should be addressed to the consular officer in question for transmission to the proper parties.

An American consul reports that a large rice plantation in southern Asia desires to purchase two pumps, each capable of lifting 8,000 tons of water per hour 1½ meters (59 inches) high. Bids should be submitted as promptly as possible, as delivery of the pumps is desired within eight months, if possible. A rice mill will also be established on the plantation in the near future, and this will call for more machinery, including a large amount of agricultural machinery.

An American consular officer in Latin America reports that two business men in his district desire quotations on steel tramway or T rails 15 to 35 pounds per linear yard; locomotives with fire-boxes for wood fuel for 60-centimeter (23.62 inch) gage, capable of hauling a load of 3 cars with 3 tons of freight each on a maximum gradient of 3½ per cent; fish plates, switches, frogs, spikes and bolts, and passenger freight cars of the foregoing gage. They also desire prices and information on one complete steam or horse power outfit for manufacturing 5,000 bricks per day.

A report from an American consular officer in Latin America states that a business man in his district holds a concession good for a period of 50 years for the construction and operation of a tramway covering a distance of 180 kilometers (49.60 miles). The population of the district is estimated to be 76,000, and the present freight movement 60,000 cargoes per annum, at $2.50 each. The holder of the concession desires to correspond with American firms who would enter into a contract to construct and operate the above-described tramway. The business man gives New York City references.

According to a report from an American consul one of the Latin-American governments is in the market for 11 hand-power hoisting cranes, with a capacity of from 7 to 10 tons, for the use of the state railways at certain ports. The bids are to be opened November 21, 1908, at 2 p. m., in the office of one of the government officials. It is hardly probable

that American firms will have an opportunity to submit bids, owing to the limited time, but it gives the American manufacturer an idea of the importance of the work being carried on and the consul suggests that it might pay to at least establish an agency there.

A business man in Europe has written to an American consular officer that he is in the market for a quantity of lubricating oils and requests that independent American firms communicate with him.

A report has been received from an American consular officer in the far east, stating that a telephone company in his district will receive tenders until December 31, 1908, for the supply of apparatus and equipment for their new telephone exchange. Specifications and blue prints covering the same can be obtained from the Bureau of Manufactures by manufacturers in this line.

Bids will be received until November 2, 1908, by the Isthmian Canal Commission, Washington, D. C., for furnishing the following supplies: Steel, iron, steel rails, angle bars, tie plates, rail braces, iron and steel pipe, steam churn drills, pneumatic hoists, chain blocks, pipe-threading machine, geared shaper, motor-driven grinder, electric drills, band saws, planer jacks, cutting and milling tools, wire rope, wire, hose, painter's trestles, vises, hammers, post-hole diggers, trowels, tallow pots, hinges, sash bolts, hooks and eyes, hasps and staples, coat hooks, cotton hooks, window glass, kitchen utensils, knives, buckets, vinegar bottles, mop heads, railroad flags, ticking, pillowcases, wrapping paper, exploders, dry batteries, graphite, cylinder lubricant, sperm oil, lumber, etc. (Circular No. 473.)

Consul-General William H. Michael, of Calcutta, reports that the Bengal government has recently accorded administrative approval to a detailed scheme for the installation of waterworks at Puri. The scheme is estimated to cost Rs. 3,000,000 ($1,000,000) in round figures, and toward this the local government has made a grant of Rs. 1,000,000 ($333,333⅓) from provincial revenues. It is understood that the municipality will take a loan of Rs. 50,000 ($16,665) and that another Rs. 25,000 ($8,333) will be contributed from the lodging-house fund. There will still be a large balance to provide.

(1) Vice and Deputy Consul John R. Silliman, of Saltillo, Mexico, states that, according to an official publication of recent date, a concession for the construction of an electric street railway in that city has been granted to Messrs. Schondube & Neugebauer and Engineer Rodolfo M. Garza. According to the concession, the plans must be approved and work begun within nine months. (2) An American consular officer in Latin America reports that it is announced that an electric line is to be built in the country in question. The line will be about 50 kilometers in length (about 31 miles) and will cost about $500,000. The surveys have already been completed, and it is believed that the line will conduct a freight as well as a passenger business. The consular officer gives the name of the manager with whom correspondence should be held by interested manufacturers of this class of equipment and supplies.

A motor car line has been recently established in an European country, and the American consular officer there states if motor car manufacturers will send him their catalogues and price lists he will hand them to the officers of the mentioned line.

An American consul in an European country states that an old and well-established firm there is interested in all kinds of woodworking tools, such as adjustable scrapers for parquetry floors, eccentric saws, files, augers, planes, plane knives, etc., and also rubber tips for the legs of furniture, etc.

Consul-General George E. Anderson, of Rio de Janeiro, reports that the Brazilian Ministry of Industry, etc., has issued a call for bids for the construction of a railway from Timbo to Propria, in the states of Bahia and Sergipe, respectively. Payment for the work will be made quarterly in 5 per cent bonds, and work must commence within three months after the signing of the contract. The government estimates the cost of the road at somewhat over $4,000,000.

Vice-Consul-General Charles A. Risdorf, of Frankfort, reports that the minister of finances of the kingdom of Saxony offers a prize of 2,000 marks ($480) for the best treatise relating to the discharge and neutralization of the waste gases of extensive furnaces with the purpose of rendering them harmless to vegetation, and a prize of 10,000 marks ($2,400) for the inventor of a new method to solve this problem. Unskilled laborers must be able to work the new process, but the invention may be utilized by the designer in his own interests. Delivery can be made until December 31, 1909, and the prize will be awarded after two years of probation.

Deputy Consul-General John W. Dye, of Berlin, Germany, reports that bids are desired for the following undertakings: (1) Bids are solicited by the city of Craiova, Roumania, for the building and operation of a street railway. Bids close December 20, 1908. (2) In order to stimulate the erection of meat extract and preserving plants in Paraguay, the Diario Oficial announces that all machinery, etc., for use in such factories will be allowed to enter the country duty free. (3) The Roumanian Government Railway Bureau, Bucharest, is in the market for 450 open and 50 closed freight cars, also 21 locomotives with tenders and parts complete, one of which must have a speed of at least 44 miles per hour. (4) The Chilean government solicits bids for the building of a railway from Papudo to Copiapo. All imported material for the building and operation of this line for five years will be entered free of duty. Plans and specifications may be seen at the Chilean legation, Washington, D. C.

Consul H. Albert Johnson, of Liege, furnishes the following information concerning the question of abolishing all grade crossings on Belgian lines, now being considered by the ministry of railways: It is estimated that the entire sum needed to meet the expenses that such a measure would entail would be $60,000,000. At present there are as many as 6,125 grade crossings on the Belgian lines, and in most cases where it will not be possible to change the direction of the roadway it will be necessary to arrange to carry it either over or under the railway line. For changes that do not demand either the elevation or depression of the roadway, and are therefore the least expensive, it is estimated that about $4,000 will be needed for each crossing. For such crossings as require the elevation or depression of the roadway above or below the track it is calculated that the outlay will not be less than $200,000 for each crossing.

DOES WHAT IT IS CLAIMED.

Mr. B. E. D. Stafford, of the Flannery Bolt Company, of Pittsburg, Pa., has issued the following statements to his many friends:

The Tate Flexible Staybolt has accomplished all we claimed for it. It has reduced the staybolt breakage to a minimum. It has lessened, and in many cases eliminated, the chances of the fire sheet cracking, in proportion to the extent of the flexible staybolt installation. It has reduced the cost of fire-box repairs to such an extent that the maintenance of such is but a minor consideration compared with former practice. It has demonstrated the fact that flexible connections are necessary in fire-box design to cope with the force of expansion and contraction, to render safe results and safeguard the material destruction. It has proved in service its value as a flexible stay over the ordinary or rigid staybolt, establishing beyond doubt the necessity of using flexible stays to obtain economical results. It has merited the distinction of being the most perfect of all designs of flexible staybolts to render service results, and is recognized as the standard where flexible stays are used or where flexible stays are mentioned. Every railroad should become familiar with the Tate Flexible Staybolt and use it largely, for we feel assured from the records of four years' service on over 100 railroads, that it will prove an indispensable factor in lowering fire-box maintenance.

TEXAS COMMISSION MODIFIES ORDERS.

On October 9, the Texas Railway Commission made a number of orders modifying and suspending former orders to railroads requiring them to purchase equipment in 1908. In the case of the Livingston & Southeastern the order is suspended entirely.

The Houston & Texas Central secured a modification and will buy two locomotives, eight passenger coaches and 38 oil tank cars.

The Orange & Northwestern is relieved of buying any equipment in 1908, and is ordered to buy two locomotives, two passenger coaches and 100 freight cars in 1909, and one locomotive, two passenger coaches and 80 freight cars in 1910.

The Texas Midland negotiated a modification and is ordered to buy 100 box cars in 1908, 100 next year and 20 in 1910.

The Eastern Texas also secured a modification and is ordered to purchase two locomotives, two passenger coaches and 50 freight cars in 1908, one locomotive, one passenger coach and 50 freight cars in 1909 and 20 freight cars in 1910.

The Beaumont, Sour Lake & Western obtained a suspension and is ordered to acquire six locomotives, four passenger coaches and 250 freight cars in 1909; four locomotives, four passenger coaches and 250 freight cars in 1910.

B. & O. SHOP FOREMEN.

The RAILWAY JOURNAL is indebted to Mr. J. T. McSweeney, master smith of the Baltimore & Ohio shops at Baltimore, for the accompanying picture of the foremen of the shops at Garrett. It is not often you find a full set of better looking mechanical heads than those who are in charge of the B. & O. shops at Garrett. The work turned out at that point is an evidence also that they are men of splendid mechanical ability. Since this picture was taken some of the foremen have been promoted or transferred, but the list and titles at date of picture was as follows: Bottom row, reading from left to right, R. R. Bradley, car shop foreman; A. C. Cobler, tank shop foreman; W. C. McNabb, paint shop foreman; D. Gallaudet, master mechanic; A. Cross, tin shop foreman; J. T. McSweeney, master smith; M. J. Driscoll, machine shop foreman; top row, left to right, J. Dimbetzki, yard foreman; F. Bohemis, roundhouse foreman; L. E. Galloway, general foreman (since resigned); B. Satterfield, chief clerk (train master's office); B. Groves, saw shop foreman; F. Lamback, erecting shop foreman; M. J. Heran, master boilermaker. This is the class of able men that the B. & O. employs to keep the road up to the highest standard.

B. & O. SHOP FOREMEN AT GARRETT, IND.

NEW EQUIPMENT.

The Rock Island will soon place orders for 60 locomotives.

The Chicago & Northwestern has let the contracts for 15 road engines and 40 switch engines.

The Chicago & Alton has contracted for 20 consolidation engines, and is to purchase five switch engines later.

The Pennsylvania is contemplating ordering 44 more steel passenger cars.

The Mexican Central has recently ordered a consolidation locomotive from the Baldwin works.

The Lawton, Wichita Falls & Northwestern will soon let contracts for cars and locomotives.

The Cambria Steel Company has contracts for building 681 all steel gondolas of 100,000 pounds capacity for the Illinois Central.

The American Locomotive Company has the contract for building five locomotives for the Denver & Rio Grande.

The Baldwin Locomotive Works has contracts for three locomotives from the Nashville, Chattanooga & St. Louis.

The Chicago, Milwaukee & St. Paul has been figuring on 50 Prairie type engines and will build 5,000 box cars and 2,500 gondolas. Some of the cars will be built in the company's shops at Milwaukee.

The Pullman Company is building for the Harriman Lines 71 steel passenger coaches, 10 steel chair cars, 77 steel baggage cars, 20 steel postal cars, 30 steel underframe diners and 12 steel underframe combination mail and passenger cars.

A new type of locomotive has been introduced on Russian railroads. It is the so-called improved 4 and 5-axle type of the southeastern railroads. The 5-axle locomotive weighs 154,728 pounds, and the 4-axle tender 13,104 pounds, total weight 167,832 pounds. The cost of this locomotive is, according to the estimates of the factories, $26,380. It is the most expensive of all types of locomotives used in Russia.

According to a telegram from Chittagong the railway board has allotted $350,000 to the Assam Bengal Railway, of India, from the extra funds sanctioned for the Indian rolling stock for the next financial year. To keep pace with the requirements twelve new engines have been ordered from England, namely, six hill-section engines and six of the new type tank pattern. The latter will be utilized for "pushers" on the hills and for heavy shunting. These and eight new good engines just turned out of the shops will add much to the hauling capacity of the road. An order has been given for the immediate dispatch of 400 newest type vacuum-brake covered freight cars, besides other rolling stock.

The State Railway of Roumania expect to let bids in this country for 21 locomotives.

President Shaughnessy, of the Canadian Pacific, is quoted as saying: "It is not easy to designate in advance with any degree of particularity the purpose for which the money will be required except in the matter of rolling stock. In the six years—1902 to 1908—there was an increase in your equipment of 659 locomotives, 842 sleeping cars and day coaches, and 25,190 freight cars, at an approximate cost of $37,000,000. Prospects are that within the next six weeks demand will be in excess of the supply of freight cars."

MAINTENANCE OF THE ELECTRIC LOCOMOTIVE.

At this early date of electric locomotive operation it is not possible to make exact figures on the maintenance, owing to the fact that we are not able as yet to determine what would constitute a general overhauling. However, we believe that the largest items in the general overhauling will be the turning of the tires and the painting of the locomotives. The latter, no doubt, will limit the time of the locomotive out of shop, instead of the tire wear. It is a fact that the tire wear on electric locomotives is but 1-32 inch for 30,000 miles, as compared to 8,000 or 9,000 miles on the steam locomotive. Should it ever be decided to shop the electric locomotive on the tire wear basis, it would mean that the locomotive would run approximately 210,000 miles between general overhauling.

However, the running maintenance of the electric locomotive is much lower than that of the steam locomotive, owing to the fact that the electric locomotive is not given the roundhouse inspection at the end of each day's work; they are inspected on a 1,000-mile basis, which at present means once in every ten days. This inspection is similar to the practice in steam locomotive inspection to a certain extent; the locomotive is taken in the shed on a pit, and the inspection is begun by first blowing out the electrical apparatus with an air blast. The motors are then examined, the commutators, contactors, switches and controllers are cleaned. The control system is inspected and checked; in fact, every part of the electrical apparatus thoroughly examined. The contact shoes are gaged, the journals oiled, and the locomotive is ready for service again. The actual time required to inspect an electric locomotive is on an average of about 3½ hours. There is no preliminary work on these electric locomotives before making inspection, as there is no fire cleaning, coaling or watering; sanding, of course, is necessary.—J. P. Kelley, before the Traveling Engineers' Convention.

ELECTRIC POWER ON THE NEW HAVEN.

William S. Murray, electrical engineer of the New York, New Haven & Hartford Railroad Company, which has been operating the Westinghouse single-phase electric railway system on a part of its lines during the last two years, in discussing their experiences with electrification, says, according to the Boston News Bureau:

The most commercially valuable answer as to the success of electrification on the New Haven is written in the actual operating schedule in the electrification zone. The train minute delays suffered today by electrical operation are but a small percentage of those incurred during the period of steam operation. As the zone limits in our case were not a terminal proposition, the application of the direct current showed itself to be impracticable. On account of errors, always common of initiative work, the first few months' operation has been a period of interruption which has naturally been annoying both to the road and the public. Today the delays have disappeared by the removal of their cause.

The wisdom of the purchase of a locomotive consisting of two individual half units, the whole or half unit being operative by a single crew, has proved itself in the ability of the road to handle 75 per cent of traffic with half unit locomotives, using the whole unit on the remaining 25 per cent of trains, whose weight demands the full drawbar. Should future requirements see the advantage of extension of electrification east of Stamford, the system is designedly applicable. As to the saving in cost of operation as compared with steam, I would state that operation today has not been a sufficient length of time to make this comparison. It may be interesting to note, however, that by exhaustive investigation I have found that one pound of coal burned under the boilers of our central station produces twice the drawbar obtained by one pound of coal burned in the fire-boxes of the steam locomotive, or in other words, the fuel bill for electric traction is one-half of that required for steam traction. Other economies will arrive in the low cost of maintenance and repairs of the electric locomotive as against steam locomotives.

The density of traffic is, of course, the paramount feature as to the savings to be effected by electrification. It is not to be forgotten that, in electrifying, interest, depreciation, insurance and taxes follow closely on the heels of the capital investment in equipment and material necessary to electric operation. The heavier the traffic, the greater will be the economies derived from the two above mentioned sources. It is quite conceivable that the heavy ton-mileage in freight and passenger service on the Atlantic coast line roads will effect savings sufficient to cover the above-mentioned fixed charges on the investment necessary to their electrification. The greatest value to be experienced by electrification will be in the tremendously increased traffic capacity of the present track mileages, due to the facility electricity offers in making rapid main line and yard movement, or, stated in another way, it is thus immediately seen that electrification will permit a tremendous increase of traffic without an increase of track mileage, and thus roads which are up against the requirement of handling their congested traffic by laying new tracks, which, of course, is a most expensive procedure on account of right-of-way difficulties, will be led into providing an equal capacity by electrification of the old trackage.

MANGANESE OUTPUT.

Consul-General William H. Michael, of Calcutta, furnishes the following information concerning the manganese mines of British India: The output of manganese shows substantial increase, having risen from 436,442 tons in 1906 to 642,082 tons in 1907. Of this over 496,000 tons were raised in the central provinces, which have increased their output by 170,000 tons. The tract of country in the central provinces alone over which manganese deposits exist covers 3,500 square miles, which will give some idea of what this industry will develop in the near future. "Chemically," says the chief inspector of mines, "the ore is one of the richest and purest mines in the world. The percentage of manganese varies from 50 to 55, while the phosphorus contained is low." From 10,000 to 15,000 coolies are employed in the manganese mines of the central provinces, where the rate of wages has advanced fully 50 per cent within recent years. There are good opportunities for investment in manganese lands in India and in the development of new mining properties.

BOILER CONSTRUCTION.

All boilermakers who wish to get the best work on locomotive boiler construction can secure through the RAILWAY JOURNAL a copy of Frank B. Kleinhans' new book on "Boiler Constructions," a book of over 430 pages, handsomely illustrated and cloth bound. The book contains 334 clear cuts and five pages of large plates, illustrating different forms of locomotive boilers. There are 75 pages devoted to laying out and about 50 pages devoted to tables, rules and other valuable data. We have arranged to secure this book for our readers at cost—$3—which will be sent postage paid. It is the most complete and up to-date work of its kind we have been able to secure for our readers, and we think it is about what every aspiring boilermaker needs. A boilermaker of forty years' experience writes: "I would not take $10 for my copy if I could not replace it." We also take orders for the Walshaert Locomotive Valve Gear.

This valuable book of 150 pages, finely illustrated, should be in the hands of every railway engineer, fireman and mechanic as well as foreman. It is devoted exclusively to the above system of valve motion. The book contains information that is put forth so simply that anyone can easily understand it. Its illustrations and diagrams alone are worth more than the price, $1.50. We also have "Locomotive Catechism" for $2.50.

FREE THIS YEAR.

Those who subscribe for the RAILWAY JOURNAL now will get it till January, 1910, for One Dollar. Address all communications to 506 Royal Insurance Building.

MECHANICAL NOTES.

The shops of the Estacado & Gulf are to be located at Grider, Tex.

The Santa Fe will erect a large modern roundhouse at Argentine, Kan.

The Canadian & Pacific roundhouse at North Bay, Ont., was destroyed by fire recently.

The Southern Pacific will erect a large modern roundhouse at Beaumont, Tex., to replace the one destroyed by fire on October 7.

The large machine shop of the Southern railway at Spencer, N. C., was partially destroyed by the explosion of a powder storage house in the yards on October 1.

The Rock Island has contracted for extensive terminal improvements at El Dorado, Ark., including an eleven-stall roundhouse, 115,000-gallon steel tank, turn-table, etc. The company is also making extensive improvements at Winfield, La.

The new works of Messrs. Renold, of Manchester, Eng., are driven only by electric power and all the motors in the shop are similar and interchangeable. They claim that by means of chain belt the output is increased by over 20 per cent, and using Brown & Sharpe tools during a trial lasting 138 hours a chain-driven machine yielding 3,074 rollers as against 2,485 rollers obtained from a belt-driven machine.

The Canal Record, the official publication of the Isthmian Canal Commission, gives a detailed account of the shops on the Panama Canal work. The principal shops (not including two marine shops) are located at Gorgona, Empire, Paraiso and Cristobal. These shops keep in repair the equipment used in building the canal, furnish parts that cannot be bought in the open market, do emergency work that could be done as well and as cheaply in the states as on the isthmus, were it not for the time involved, and finally compete with the shops in the states to the extent of making machines and parts that can be manufactured here more cheaply than they can be laid down at Colon by American shops.

CONSTRUCTION AND IMPROVEMENTS.

The Erie has completed its Guymard cut-off between Guymard and Newburg Jct., 42 miles.

The Chicago & Milwaukee (electric) has been completed between Evanston, Ill., and Milwaukee, Wis.

The Atlanta, Birmingham & Atlantic has completed its line to Birmingham, Ala., from Talladega, 68.6 miles.

The Georgia & Florida has opened for business its new extension between Nashville and Valdosta, Ga., 30 miles.

The Ft. Smith & Western has plans for constructing 150 miles of road. The headquarters are at Ft. Smith, Ark.

The Quebec Central has asked for bids on 30 miles of a proposed extension of 140 miles. Work is to be pushed the coming year.

The New Orleans Great Northern has arranged to make several extensions this coming winter and complete the one now in progress.

The Viriginian Railway has recently opened up 81 additional miles of road. The line is to extend from Norfolk, Va., to Deepwater, 441 miles.

The Western Transportation Co., of St. Paul, Minn., is promoting a company to construct a line from Portage, Wis., to Grand Rapids, 70 miles.

Contracts have been let by the Carolina, Clinchfield & Ohio for the construction of 32 miles of road between Bostic, N. C., and Spartanburg, S. C.

Mr. H. Leon Miller, of Great Bend, Kan., is president of the Winnipeg, Yankton & Gulf, which is negotiating loans for construction of their proposed road.

It is announced that the Brazilian government has about completed plans for an extensive dock system at Rio de Janeiro which will cost several millions of dollars.

R. W. Earnheart, of Batesville, Ark., is president of the Missouri, Arkansas & Southwestern, which proposes to build from Batesville to Black Rock, 40 miles.

The Atlanta Northeastern proposes to build from Atlanta to Cummings, Ga., about 42 miles. F. C. Tate, of Jasper, Ga., is one of the promoters.

W. M. Legg, of Macon, Ga., is president of the Georgia Southern & Gulf, which proposes to build from Albany, Ga., south to Marianna, Fla., about 160 miles.

B. F. O'Neill, of Wallace, Ida., is president of the Idaho Northern, which is doing considerable construction work in northern Idaho. W. P. Smith is chief engineer.

The Denver, Laramie & Northwestern is pushing its construction work from Denver north to Ft. Collins, Colo., and Granger, Wyo. Some of the material has been purchased.

The state of Georgia, which owns the Western & Atlantic, has appointed a commission to investigate the advisability of constructing an extension from Atlanta to some point on the coast.

The Denver Northwestern & Pacific, the Moffitt Road, has about completed its line to Steamboat Springs, Colo., about 215 miles. This concludes the heavy construction work en route to Salt Lake City for the first 500 miles.

Grading and portions of the track laying have been completed on the Lawton, Wichita Falls & N. W., which is being built from Red River Jct., Okla., to Lawton, Okla., 40 miles. J. M. Bellamy, of Lawton, is president.

H. U. Mudge, vice-president of the Rock Island, is authority for the statement that the road would soon complete work on the cut-off between Amarillo, Tex., and Tucumcari, N. Mex., giving the road a through route east and west between the latter point and Memphis, Tenn.

A new railroad is projected to pass through parts of the states of Coahuila and Chihuahua, Mex., which are at present without railway facilities. The eastern terminus of this road is to be at Monclova, Coahuila, on the line of the Mexican International, and it is to extend in a northwesterly direction to Chihuahua, the capital of the state of the same name. The length of the new line will be about 375 miles.

The Missouri, Kansas and Texas in the year ended June 30, 1908, according to the annual report, laid new 85-pound rails on 49.46 miles of track and ballasted 162 miles. The work of renewing the light bridges of the southern divisions was finished, so that heavy engines may now be run through to Houston, Tex., and San Antonio. Satisfactory progress was made in reducing grades on the section between Atoka, Okla., and the Red River, and this work is now nearly completed.

A report from Guadalajara, Mex., says that December 10 has been set as the date for the completion of the Southern Pacific extension from Orendain, the Mexican Central junction, to Tequila, the center of the tequila industry of Jalisco. The distance is 34 kilometers. As soon as the line is finished a mixed train will be placed in operation between Tequila and Orendain, connecting at the latter point with the Guadalajara-Ameca trains of the Mexican Central. According to present plans the extension will be completed as far as Tequesquite, a distance of 70 kilometers from Orendain, by next March. This will place transportation facilities within easy reach of the mines and mills of the Hostotipaquillo district of this state.

A report from Victoria, B. C., says that work is actively progressing on the extension of the Esquimalt-Nanaimo Railway from Wellington, via Nanoose, to Alberni, at the east end of the Alberni canal, Vancouver Island. It is now confidently expected that the new line will be in running order to Alberni during 1909. A large force of men has been at work on this extension, clearing the right of way. The railway route has also been surveyed from Duncan, a station 30 miles from Victoria on the Esquimalt-Nanaimo Railway, to Cowichan lake, and a subsidy has been voted therefor by the Dominion parliament, but it is not expected that work will be done on the proposed line until next year. Another line has also been surveyed from the Great Central lake on the island, which lies to the northwestern end of Alberni, 11 miles from the terminus of the new line.

EQUAL TO A DOUBLE TRACK RAILWAY AROUND THE GLOBE.

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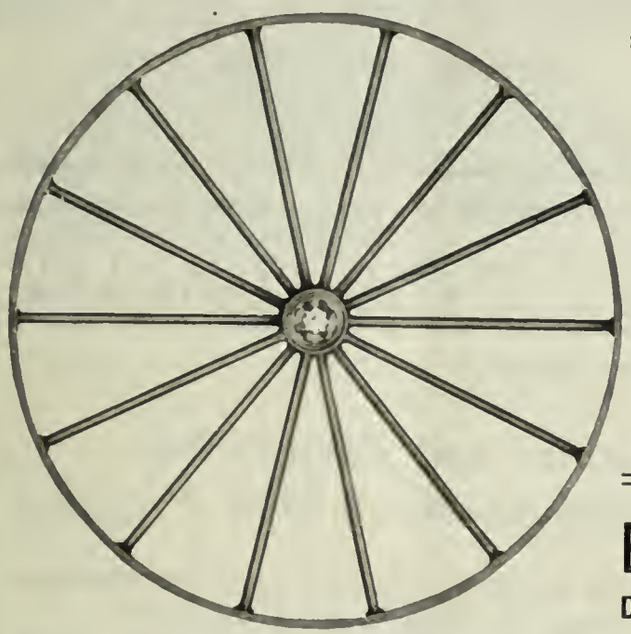

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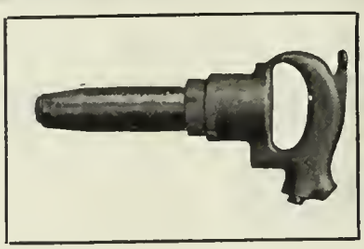

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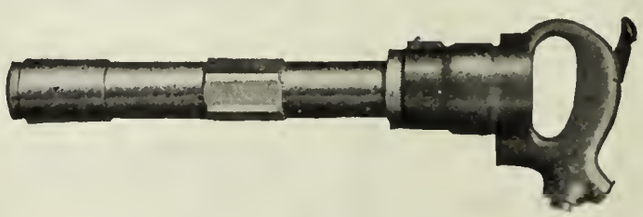

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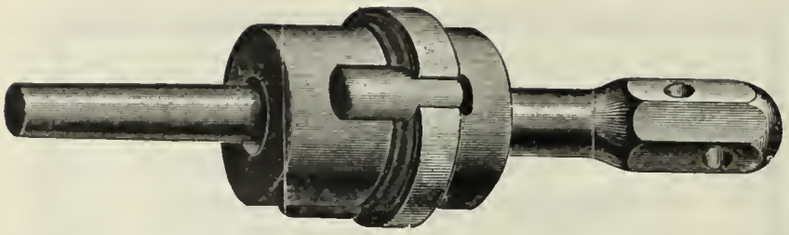

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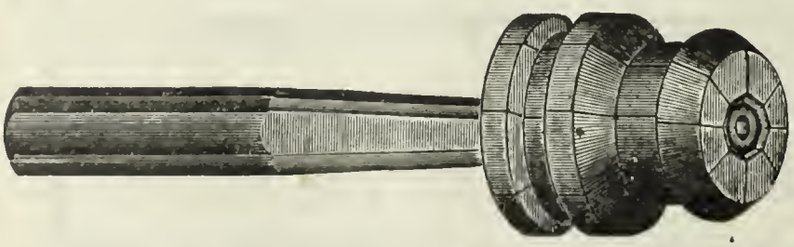

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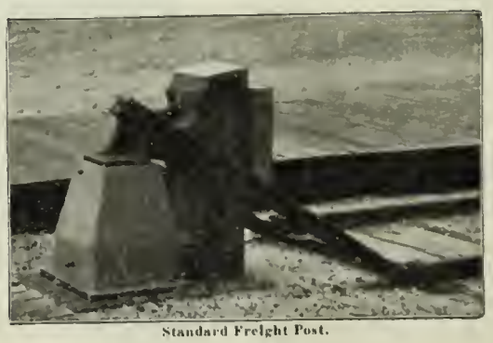

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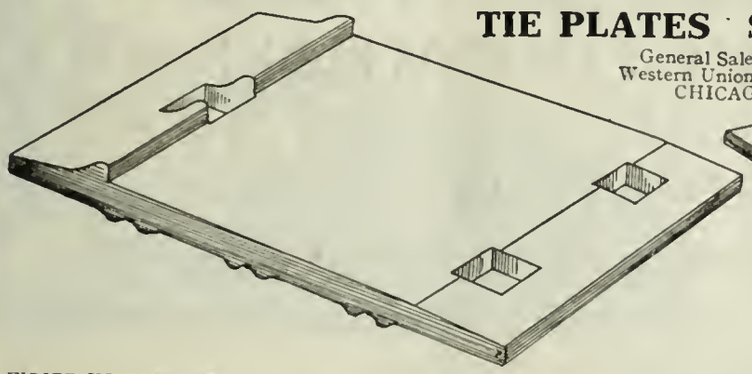

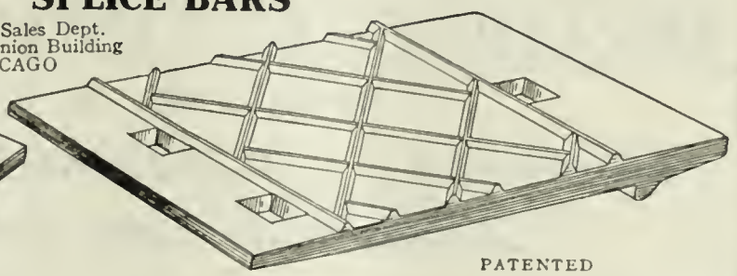

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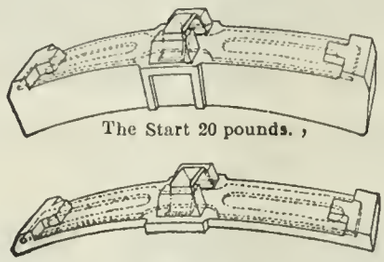

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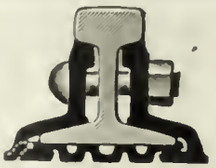
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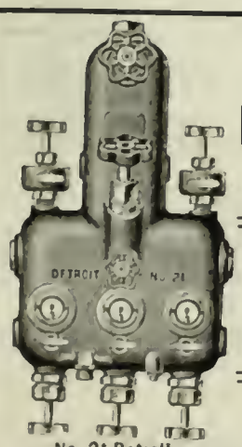
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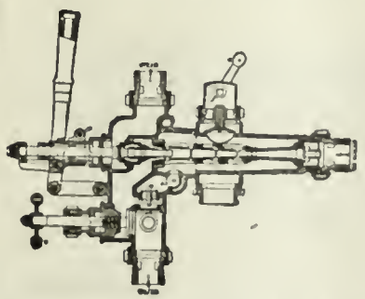

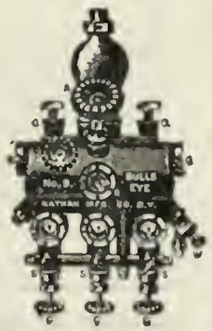

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Official Organ of the National Association of Freight Traffic Agents and the International Railroad Master Blacksmiths' Association.

Address all communications to
RAILWAY JOURNAL, 506 Royal Insurance Bldg., Chicago, Ill.
'Phone, Harrison 1006.

Entered at Second-Class Matter October 22, 1906, at the Post Office at Chicago, Illinois, under Act of March 3, 1879.

E. C. COOK . . . . . Managing Editor

SUBSCRIPTION PRICE, One Dollar per Year, Ten Cents per Copy

ADVERTISING RATES FURNISHED ON APPLICATION.

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IMPORTANT NOTICE.

Owing to a change in the management of paper and its place of publication, we wish to call our patrons attention to the fact that all correspondence in connection with the RAILWAY JOURNAL should be sent this office, 506 Royal Insurance Building and0in the name of the RAILWAY JOURNAL.

Last month there was held in Chicago a convention of a new railway organization that has been perfected for the betterment of railway service like all other railway associations. It was that of the Association of Car Lighting Engineers. The members are in charge of the car lighting equipment of the steam roads of this country and Canada, and are at the heads of their profession. The work they accomplish is important in railway passenger train service. The program presented indicated that the car lighting engineers are organized for an educational purpose that will be of great benefit to the roads they represent. The convention was well attended and the business transacted reflects creditably on the new organization.

The Grand Trunk Pacific, in its extensions, will adopt a commendable method of keeping the local station environs from presenting an unsightly appearance as is too often the case in small towns, though no fault of the roads. The above road will control the townsites at most points and will lay out the towns around and near the station by such methods that will preclude the possibility for unsightly buildings and industries to be erected near the track. The plan is to lay out the new towns with streets at right angles with the track and to prevent any business streets from being layed out along the track. Shops, livery stables and all forms of noisy enterprises will not be permitted near the station. This method gives the railway company opportunity to beautify its grounds around the passenger station.

A new view of water transportation in this country is taken by Mr. Yoakum of the Rock Island-Frisco systems, if he is quoted rightly by the press. In a letter, written to a commercial club of Texas, he argues that the further development of railways in the territory west of the Mississippi river will encourage the deepening of that river and its tributaries, and predicts that deep draft steamers will go further into the interior. Mr. Yoakum asserts that the railroads are not opposed to improving the rivers and harbors. As a comparison of what the railways are, being built and owned by private capital, and what the waterways are, improved and controlled by the government, Mr. Yoakum says:

> The splendidly built and equipped railroads of America, costing $15,000,000,000, compared with the inadequate water ways under the parsimonious policy and methods of our government, clearly illustrate a difference in the service to the public, favorable to the railroads. The roads have been built by private capital. Inadequate navigation facilities by the government clearly forecast what would happen if private capital were forced out of railroad building through unfair and restricted laws with government control.

As we are now near the close of another year it is pleasanter to look forward to what the future promises than to refer to the unsettled conditions for the last twelve months. The little financial flurry was disastrous in a few instances, but the stable condition of our national finances and the wonderful resourcefulness of our

country gave us assurance that the unfortunate tide would soon turn back and leave the general business situation on a solid basis. It is not appealing to imagination in predicting that the coming year promises to be among the most prosperous in the history of our country, for it will be the logical result of the present shaping of affairs. No business boom is anticipated, save perhaps in a few special fields, but a constant, steady growth—a wholesome business development. Traffic promises to be heavy, and few, if any, skilled men will be out of employment. Mills will be operating and all forms of factory industries will take on renewed activity. Even outside the holiday trade, business has within the past few weeks, manifested encouraging activity. The idle car and the idle employe will soon again be incidents of the past, judging from the present tone of the marts and the banking interests.

IMPORTANT RULINGS OF INTERSTATE COMMERCE COMMISSION.

During the past few weeks the Interstate Commerce Commission has ruled informally as follows on several important problems that have been unsettled in the minds of many carriers:

ISSUING PASSES.

Under the recent amendment to the anti-pass provision of Section 1, Held, That a pass may be issued to a bona fide exemploye of any carrier subject to the act, who is traveling for the purpose of entering the service of any such common carrier, whether such service has or has not previously been arranged for.

Upon an inquiry involving an interpretation of the recent amendment to the anti-pass provision of Section 1 providing that free transportation may be given to the families of employes killed in the service of common carriers, Held, That the provision does not include the families of employes who died a natural death while in the service of common carriers.

COLLECTION OF L. C. L. SHIPMENTS.

The commission condemns as unlawful a practice under which a common carrier provides an empty car at factory sidings in which the shipper may load L. C. L. shipments, which the carrier then moves to its regular freight station, where the shipments are assorted and placed in other cars to be forwarded to their respective destinations. Such practice is lawful only under definite and clear tariff authority, non-discriminatory in terms and in its application.

MAY GIVE RATES TO SCHOOL CHILDREN.

A carrier offers a 46-trip monthly commutation ticket and provides that it shall be issued only to pupils, without regard to age, who are in attendance on schools of a certain kind or class, and specifically provides for the exclusion of pupils attending various other kinds of schools. Held, That this regulation is unjustly discriminatory and therefore unlawful; but that carriers may lawfully offer and use a commutation ticket limited in its sale and use to children or young persons between certain stated ages, as, for instance, from 12 to 21 years of age. Such arrangement will provide desired rates for school pupils and will not exclude other children traveling under substantially similar circumstances, but for the purpose of securing other lines of instruction or on other missions. It will also protect against the use of such ticket by adults. The carrier may not inquire into the mission, errand or business of the passenger as a condition of fixing the transportation rate which such passenger shall pay.

WHEN TICKETS MAY BE EXTENDED.

A carrier may also provide in its tariffs that whenever, because of washout, wreck or other obstruction to its tracks, public calamity, the act of God or of the public enemy, a passenger is delayed on its lines so that the limit of such passenger's ticket has expired or has elapsed to such an extent as to curtail his stop-over privileges, the conductor or other specified agent will give, by endorsement on ticket or otherwise, certificate of such detention, and that such certificate will operate to extend the limit of such ticket to the extent of detention so certified, and that such extension will be honored by succeeding conductors on its lines. It may also provide that like certificates of detention and extension given by other carriers will be honored on its lines; but no carrier may so extend any part of a ticket reading over lines other than its own except when provision therefor is not contained in a joint tariff properly concurred in.

LOCAL BILLING TO AVOID HIGHER THROUGH RATE.

A lawful through rate existed between two points, applicable over two routes, one of which was indirect and therefore not ordinarily used by the carrier for through movements. The shipper billed locally to a point on the latter route and re-billed to destination without taking either constructive or actual possession of the car at the local point, but making his re-billing arrangements with the agent of the carrier at a distant point. Upon arrival of the shipment at destination, the carrier collected the balance of the through rate. Held, That the local billing was not in good faith, but was a device between the shipper and the carrier's agents to avoid the higher through rate, by having the carrier's agents act as the forwarding agents of the shipper. In such a case the through rate is the only rate lawfully applicable.

TALK TO YOUNG TRAFFIC MEN.

Mr. J. M. Tittemore, traffic manager of the Minneapolis & St. Louis and the Iowa Central lines, made an address before the recent convention of the National Association of Freight Traffic Agents, in which he made some good suggestions which we believe will be appreciated by every railroad man connected with the traffic and operating branches of the service. The RAILWAY JOURNAL regrets that it has not space for the address in full, but takes pleasure in publishing extracts, which are as follows:

I would like to congratulate your members upon their enterprise in forming this organization. It is a very splendid idea. No other means can or will accomplish the same valuable ends as fraternal association. Association, as I mean it, is the antithesis of socialism. It develops new ideas; it burnishes up old ones; it turns light upon hitherto obscure points; it brings the very best there is out of the whole. There is no other agency which will equal this association for good in the development of your work and the firming up of your characters. We are all one; we are all railroad men. After all, the railroad president is as much my president and yours as an employe as he is of the heaviest stockholder who votes him into office. The general manager is, and from this time on must be more than ever, the custodian of the welfare of the man on the section as he is careful to serve the welfare of the man who buys the bonds. It is right that it should be so. I do not mean to state more than a just fact when I say that in the past you men have been, and you still are, the best asset the corporation has. A stockholder or an official who does not so regard you is unfit to own property or be delegated with authority. They speak of the locomotive as a great civilizer. It is a fine figure of speech. You men have been the civilizers, and in the past the traffic agent has been like the robin in springtime, the forerunner of a clearer day, the real harbinger of a new régime. You have been one of the greatest forces in initiating action, and one of the most active forces for the upbuilding of diversified industry, that I have knowledge of. You may not always have received the credit that has been your due; you may not have always received the promotion that you are entitled to; but you may feel encouraged in the thought that you have rendered a worthy and valuable service, and be consoled with the certain knowledge that many a high place has been filled in the railroad world by men not equal to you in any way. Title does not confer ability upon men, though some men think when they are clothed with a little brief or accidental authority that it adds some inches to their stature. It is not so. Generally speaking, the railroad service has a rarely-gifted lot of officers, but not all of them are so. A few pin-heads creep in, and, as a general thing, I need not give you a description of the kind of man I mean, if you have ever worked for one. They are narrow, unsympathetic, and view the railroad service as they view the regular army service. Once or twice in my life I have been under such men. Thank God, there are but few of them left. They came down from the old conditions to us, and the pity is that they have not been kicked out long ago. A man in the railroad business in a subordinate capacity has the right to correct governance and sympathetic and helpful advice and supervision, just as much as the superior and the corporation has the right to expect and receive efficient and loyal service. You are a part, and a great part, of the capital of the

enterprise; you are the greater and the better part. These meetings will stimulate a more exalted idea as to your obligations to your companies and to each other, and will bring about a more brotherly feeling of responsibility, without which the best ends can not be achieved. Association such as we have here today broadens the human vision. What we must have is a truer and deeper insight. Let us hold our minds open to the influences of the "process of the suns" and develop ourselves to the highest point of usefulness in our vocation and in our personal lives. There is a deeper, keener, and more far-reaching sight than that of sense. It is the sight that comes from reason and from faith, the sight that reasons from broad premises, and which insight or reasoning begets a deeper faith in human nature as a result. Association such as we have here today broadens the human vision. It kills out the weeds of narrowness and obstinacy. While a high-sounding title and a private car does not add to the ability of a man's brain to work, it does argue that he has reached an important altitude in life, and that all narrowness should have been dispelled with the advent of the greater responsibilities. Narrowness of ideas, obstinacy of view because it is one's own, has injured the fraternity, and one of the good omens of the new legal dispensation is the fact that the narrow-headed railroad man who knew it all, and whether he did or not, proposed to force his views on others, has passed out of our need for reckoning with. I have felt this deficiency very much myself, and it is meetings like this which bring conviction to me that the fraternal sentiment and the fraternal responsibility that is born of association like this will broaden our characters so that we will be better able to mirror ourselves and see ourselves as others see us.

Association like this is invaluable to all of us. It tends to kill conceit. Nothing will demolish self-assurance like close contact with our fellows. A man will usually be embarrassed when he finds how little he really knows in comparison with others. He will soon find out how much more every one else knows about his favorite subject than he himself knows. Association, by destroying a man's unwarranted self-assurance, leaves in its place a well-grounded personal confidence. This confidence comes as a result of mutual helpfulness. In our case it is the evidence born of the knowledge that all right-minded railroad men can together solve their own personal and official problems. Without this association and mutual helpfulness it can not so certainly be done.

Virtue of Competition.

Competition is as old as creation, and yet as new each day as the sun. Competition is about the only good principle that comes from human selfishness, which usually is the basest element, I may say the meanest trait, in human nature. Selfishness is usually thought of as synonymous with baseness, and yet at times it assumes noble form and brings great and beneficial results. Competition, when it takes on the form of honorable service, has brought about the most beneficial results for the human race. There is that form of selfishness that makes us see in our own son or daughter the budding of a promise that is not there. It takes on the form of love, and from that love is impelled a force that induces you or I to place that love or promise into the fire of competition. It is a peculiar human nature that does not feel that his loved ones are able to compete with the world's best and beat out the game. Competition as I mean it ranges among the nobler and primary spheres of conditions and of actions. You may object to the manner in which I define the word, and you may search the dictionary for technical meanings to debase its finer sense, but if you consult your heart and its sentiments, you will find that competition is a more far reaching and a nobler element in the world's work than it has been given credit for. Now, what else but the elevation of the individual could the Master of the new law have had in mind where he so plainly depicts in the parable of Matthew's Gospel the king distributing talents among his servants? To one he gave five, to another two, to another one, to every one according to his worth, his ability. The king referred to was a real man king. The servants were men like ourselves, like you and me. Contained in the talents, no doubt, were the twofold principles of responsibility and power. The talents represented the power or the right, or, if you will, the individual privilege, to go forth, and with their natural gifts—that is, their talents of ability—to compete in the world's work with or against their fellows. Not of necessity that each compete with the other in the same kind of work; no, but to compete with all other persons in all other walks of life; to compete with persons having certain talent, or to work under conditions subject to competitive forces, or, in other words, the king set a value upon the talents of the servants—a value upon their intellect, if you will—and he sent them forth to compete in the world's work. I do not mean to sermonize. I mean, if possible, to apply this parable practically to our situation today. I have a great reverence for Christian doctrines, but in this case I desire only to indicate to you the wisdom of the king, and the value of the example as coming from the greatest moral Preacher the world has known, or will ever know. I have in mind, just as you have, that the word "money" appears in the gospel as the measure of the principle or of the talent, or, if you will, money is used as a figure of the talent; but the King of kings, no doubt, meant, and the parable clearly indicates that he meant, the nobler attributes of the human mind and heart. In other words, the king sent out to compete in the world's work men with carefully-attuned human natures. He gave to each the privilege and the power to strike flint with his fellows, and he was not pleased at the return of the one talent that had been kept buried, and was so carefully brought back without gain. He was joyful at the report he received from those who gained something. How can one gain without he labors? How can one labor without he competes? Competition is noble striving. Noble striving will always yield the best and most enduring results. My friends, one of the talents within the meaning of the king has been intrusted to us, to each of us according to our ability. Capital has a status in civilized society. Our system is such that our capital, be it what it may, is, or becomes, a part of us. It is a sacred trust placed in our keeping, and it is our obligation to return it to those who intrusted it to us with a reasonable and an honest increment. We must defend that position. We have defended it, and we will continue to defend it. Capital must never make requests that can not morally (I do not say honestly) be granted. I mean that the great controllers of capital must not impose undue duties or obligations in the trusteeship; the man at the helm—the king, if you will—must bear in mind that the best capital he controls, the finest talent he has placed in the field of endeavor with which to earn the increment, is in the brain and brawn of the subordinate.

Justice weighs with two balances. The sword of Justice is said to be two-edged. The king at the helm must invite the confidence of the subordinate, even from the highest to the lowest. He must respect the minor position and the peculiar situation surrounding the subordinate. He must bear in mind that a part of the talent delivered in the obligation of the trusteeship is the subordinate official and employe. Not to be worked as a machine; not to be considered in all respects relating to his personal welfare; but also to see to it that justice is done to the individual, though the heavens fall. This responsibility is the supreme talent intrusted to the care of men. From the correct and rightful use of it we observe the office boy returning to the corporation as its general manager. The result of its rightful usage is seen in you men and other men in departmental positions rearing up families to adhere to American standards; of yielding a twofold return of the talent with its increment; first, to the corporation in his own faithful personal services, and then dividing the increment with the state in giving an added and honorable citizenship in his family. This talent of transportation was first intrusted to men long since passed off the stage of action, but the talent today reposes in the hands of the ablest men who have ever been intrusted with it. The talent is earning a great increment in their possession, and they will soon be handing it back to the king with the results of their trusteeship.

BELIEVES IN FAST TRAIN SERVICE.

At the recent convention of the National Association of Railway Commissioners the committee on Car Distribution and Car Shortage took a shot at railway management and proceeded to give some advice on railway operation. The committee holds that the railroad manager who provides for the future is the one who plans for heavy traffic. Does the committee understand that the present has to be taken care of as well as the future? While the criticism in full may fit some few managers, it is so worded as to indicate that there is something radically wrong in the whole field of railway operation. Some of the suggestions are only what railway officials have already known, and would have been glad to have

employed them were conditions such that they could. It is easy for the railway critics to look back upon the conditions of the past and point out mistakes, but these same men were not predicting any such unfortunate incidents a few years before they happened. As to the movement of freight, the committee report, which is signed by Interstate Commerce Commissioner Franklin K. Lane, makes the following suggestions:

A striking phenomena of American railroads at times of car shortage is that the daily mileage of freight cars immediately decreases—that is to say, as soon as efficiency in the use of freight cars is most needed the cars begin to do less work per day. The causes of this phenomenon are numerous and interrelated. Railroad managers correctly say that insufficient terminals, lack of passing tracks, and lack of motive power are responsible for the failure of the cars to keep moving. As one manager's illustration puts it, "No more water can go through a hose than can escape through the nozzle. The business of railroads, therefore, is limited by their terminal capacity. Cars that move must move through the terminals, and when the terminals are congested or blocked the effect reaches to every train on the system." This is true, but it is not all the truth.

During the car shortage times of 1906-7, trains which could have been handled at terminals were much delayed in arrival and individual cars were actually sidetracked for weeks on country sidings. One cause of this state of affairs was the anxiety of railroad managers to make tonnage records. The element of speed was ignored and the constant pressure from above upon those in actual charge of operation was to secure the heaviest possible loading of trains. As interpreted by the men upon whom this pressure was exerted, the word "possible" was overlooked, and in many instances trains were so heavily loaded that satisfactory movement was impossible. The net result was that whole systems were disorganized, schedules were disarranged, and the freight shipments of entire states were delayed, to the loss of shippers and probably to the net loss of the railroads also.

So far as the railroads are concerned, the immediate remedy for slowness of car movement in times of car shortage would be for managers to insist more strongly upon speed of movement of individual cars and less strongly upon tonnage records for each train-mile traveled. Those systems which have, while striving for full loading of engines, insisted upon prompt movement of all cars, have suffered least from car shortage and have most efficiently served their patrons. A recent suggestion is that managers of railways should cease to make the number of tons per mile the test of efficiency and should look rather to the showing made of ton-miles per car per day. By this change speed as well as tonnage would be kept in view, and excessive trainloads would be avoided.

More and better terminals, more passing tracks, more double track, more and better engines are needed by practically every American railroad in every time of car shortage. The demand for these great permanent improvements is one that cannot be left until the moments of congestion. The railroad managers who will best serve the future are the ones who are planning for the months when their equipment will be overburdened. The prompt repair of engines and cars is another item to which railroad managers should give attention. The policy of utilizing dull times to get cars and engines out of repair is one that is certain to make trouble for both railroads and shippers in times of fullest prosperity. Some railroad managements in their endeavor to show heavily reduced operating expenses in the months of reduced income send disabled cars and engines to store instead of to repair shops; the result is that their railroads are crippled when the days of increased tonnage come, and must attempt to serve the public with disabled engines and cars until repairs can be hurriedly made and at a cost far greater than would have been required at the proper time. The financial rather than the operating heads of our railways are the ones on whom rest the duty of instituting reform in this matter of prompt repair of equipment.

The committee in its recommendations gives expression to one good idea when it says that "As the body of freight-car equipment is practically a unit, the system of rules governing its use should be free from conflict." It is admitted that there is too much interference at times by state rules governing the questions of demurrage and free time in handling through business.

ADDRESS TO EMPLOYERS.

President Winchell of the Rock Island has issued the following thoughtful address to all employes of the road: "We are about to enter upon a new year. Our good old road is approaching her Fifty-eighth birthday, is better and stronger than ever, and it seems to me a fitting time for every one of us to resolve to make the coming year the best in its history. Every man has a vital part to perform if we succeed in that determination: when no more fuel is burned on any trip than absolutely necessary; when such care and intelligence are shown in each class of service that the 'loss and damage' accounts are reduced to a minimum; when every agent and every trainman puts forth his best efforts to please our master, the public; when not a dollar's worth of supplies or material is wasted by even one employe; when every man puts in every hour of his time to the company's best advantage; when we form a solid body of more than 35,000 men, shoulder to shoulder, headed with determination in the direction of success; then it will be generally known and admitted that the Rock Island is the greatest railroad with the best employes in the world. Aside from the matter of pride, we are all coming day by day to a clearer knowledge of the fact that we all share in the success or failure of the property. When a brakeman, or a section man, or a general office employe saves the company from a loss of one dollar, that individual has an actual share in the saving, as the company cannot spend money which it does not have. If you fully appreciate what this means to the property and to every employe, I am sure you will do your part."

LARGEST SEAPORTS.

In the tonnage of vessels coming to the port from foreign parts London leads all other ports, but many of the ships going to London also sail for other ports in the British Isles, hence are not considered in the following list of the twelve leading ports of the world, which are ranked according to amount of tonnage entered and cleared:

	Tonnage entered and cleared.
New York	20,391,000
Antwerp	19,662,000
Hongkong	19,333,000
Hamburg	18,953,000
London	18,727,000
Liverpool	14,740,000
Shanghai	14,344,000
Rotterdam	13,946,000
Singapore	12,332,000
Cardiff	11,815,000
Colombo	10,319,000
Marseilles	9,717,000

Statistics show that from New York, Antwerp, Hongkong and Hamburg more shipping leaves for foreign countries than from either London, Liverpool or Cardiff.

HISTORY OF ELECTRIC TRAIN LIGHTING.

The following is taken from a paper read before the recent convention of the Association of Car Lighting Engineers, by Mr. P. Kennedy, the paper being the report of the committee composed by Mr. Kennedy, Morris Moskowitz and W. F. Baner:

"The history of electric car lighting is coincident with the development of the incandescent lamp and a practical storage battery. The advantages of electricity for lighting railway cars was evident in the beginning of the art, and advantage was taken of the incandescent lamp for lighting cars as early as they were used for any other purpose. The advantages that were evident in the beginning are still more in evidence today, as the traveling public demands and the railway companies are supplying better accommodation than ever before, and a properly lighted car is one of the most essential features in adding to the comfort and convenience of the traveling public.

"The earliest records that we have of the practical application of electric light to railway cars was the equipment of a Pullman car running between London and Brighton in May, 1881, and this equipment was followed later in the year by the equipment of eight or nine cars with a very small number of incandescent lamps, which at that time was considered sufficient for the illumination of a car. This equipment was of the straight storage battery type and the cars were equipped with Fauré batteries. Before the first Edison central stations were in opera-

tion, the Pennsylvania railroad began experimenting with incandescent lamps, operated by storage battery under the car, importing Fauré cells from France in the spring of 1882. In 1879 Hinkefus and Wesel took out a German patent on a train-lighting system, in which a dynamo driven from the car axle operated incandescent lamps. Almost every known method of generating electric current has been used or attempted to be used for the purpose of lighting railway cars. Primary batteries were probably among the first expedients that were tried, then the storage battery alone, and the combination of a dynamo driven from the car axle and the storage battery. Later, what is known as the head end system, in combination with the storage battery, and then the head end system alone, and in one instance a wind-mill was mounted in front of the locomotive, with the intention of generating sufficient current to light a train. This scheme probably may be classed in the same category as the primary battery.

"There is now in use one system employing a combination of alternating and direct current generator in connection with the storage battery to light a train. A combination of a primary and storage battery was tried and one inventor, more ambitious than all the rest, suggested that a small generator might be mounted on the pilot of the locomotive and driven by means of friction gearing from the wheels of the locomotive, in connection with a small battery under each car. This machine would operate and light the car while the train was in motion, and the batteries, of course, would take care of the lights when the train was stationary, and in addition to this, by means of a double throw switch, when the train was entering a tunnel or climbing a grade, the engineer could throw the battery current onto the generator, and haul the train through a tunnel and thereby obviate the disagreeable effects produced in a tunnel by the smoke from the locomotive and also help the locomotive over the hard spots of the road.

"It will thus be seen that there is very little for the inventor of the future to do in original methods of generating current for lighting a car, and as a matter of fact there has been very little to do in the past, except to adapt and develop the well-known means to meet the various conditions."

A GOOD WORK BY SUPPLY MEN.

Just before the recent election the Railway Business Association was organized in New York, with members composed of men engaged in the manufacture and sale of railway supplies and equipments throughout the United States. The object of this organization is a worthy one, as will be understood in reading the following from the circular letter sent out by the organization, which is as follows:

"A wave of criticism, prejudice and, in some states, animosity against the railroads has been spreading. It has, in many cases, been most unreasonable and unjust, with the result that the railroads are greatly handicapped. Their expenses have been increased, their revenue reduced, their credit weakened and the investing public has grown afraid of their securities; not only on account of the reduced earnings, but because they are the target of so much legislation by both parties in many states. The organization is formed to show to the public at large the great volume of business which the railroad companies themselves furnish. They distributed over one billion dollars in the last good year in wages. They purchased also over $1,250,000,000 worth of manufactured material of all kinds. The railway material represented in the material purchased by the railroads did not represent more than $250,000,000, but the other $1,000,000,000 was actual labor or wages. It is part of our plan to show that if the railroads employed 1,500,000 men, there are as many more who are directly employed in furnishing their requirements."

ELECTRIC POWER FOR GRAND TRUNK TUNNEL.

On November 12 the Grand Trunk inaugurated its electric power system in the company's tunnel between Port Huron, Mich., and Sarnia, Ont., under the St. Clair river between the two cities. The tunnel has been in use for several years, but trains have been operated by steam power.

Four sixty-ton electric locomotives have been built for use in the tunnel. They are capable of hauling a thousand ton train up a 2 per cent grade at an average speed of ten miles an hour. Heretofore all freight trains had to be cut in two and the sections taken through the tunnel separately. Although the tunnel is but little more than 6,000 feet in length the total distance through which trains will be operated is 19,384 feet, the additional distance over the length of the tunnel being required by the approaches. The experts who have done the work have guaranteed the company that the operation of the tunnel will be cheaper and more satisfactory than by steam.

TRAFFIC AND FINANCE.

John W. Gates is the chief stockholder in the Port Arthur Export Co., of Port Arthur, Tex., which filed its charter at Austin, Tex. It has a capital stock of $100,000.

Mr. S. G. Warner, general passenger agent of the Kansas City Southern, states that since its organization no fatality has resulted on any of its passenger trains to a passenger.

The new westbound transcontinental tariff has the following: "The rates named herein are subject to absolute and unqualified right of initial carrier to determine the routing beyond its own time." This ruling may not suit many of the smaller lines.

At the stockholders' meeting of the International & Great Northern Railroad held recently the following directors were elected for the year: George J. Gould, Edwin Gould, Frank J. Gould, Thomas J. Freeman, H. W. Clark, N. A. Stedman, A. R. Howard, W. L. Maury and G. H. Turner.

Reports coming from Baltimore, Md., say that plans are being made for the reorganization of the Western Maryland, which is now in the hands of a receiver. It is understood that George J. Gould and his associates will secure control of the property and that its extension to connect with the Wheeling & Lake Erie will be resumed.

A company has been organized in Portand, Me., to conduct a steamboat service between New London, Conn., and New York, in connection with the Central Vermont Railroad. Charles M. Hays, general manager of the Grand Trunk Railway; George C. Jones, general manager of the Central Vermont, and L. L. Hight, of this city, counsel for the Grand Trunk, are named as directors.

A report from New York city states that the stockholders' protective committee of the Chicago Terminal Transfer Railroad Company today issued a circular to shareholders stating that a binding offer for the preferred shares represented by the committee at a price netting $20 per share has been received, provided the committee deliver not less than 50,000 shares on or before January 1, 1909.

Considerable interest is centered in the recent decision of the United States Supreme Court, relative to the rights of the corporation commission of Virginia to fix rates on intrastate business. The case is the result of the commission fixing passenger rates in that state at two cents per mile. The United States Circuit Court of Virginia held that the order of the commission to be unconstitutional, but the case was appealed to the Supreme Court at Washington which reversed the decision of the Circuit Court. Claim was made by the railroads and upheld by the Circuit Court that the rate fixed was unconstitutional and the order of the commission was confiscatory. The Circuit Court held that the commission's duties are administrative and not judicial, but Justice Holmes of the Supreme Court said that in his opinion the proceeding of the commission was judicial in character and that the court's decision of reversal was based on the failure of the railroads to exhaust their rights in the state courts. The way the matter now stands the railroads are forced to appeal to the state courts of Virginia or abide by the action of the state commission. This means that railways must take their grievances pertaining to state rates to state courts first, at least.

Vice-Consul E. G. Baldwin, of Yokohama, transmits an article from a local newspaper on the development of the electric industry of Japan from which the following résumé has been made: The electric works undertaken chiefly represented lighting and tramways. The number of lights supplied in 1903, 365,000, had increased in 1907 to 859,143. Tokyo and Osaka require each 100,000 lights. Electric tramways show equal development. In 1903 the mileage was 38, which rose to 110 in 1907, and will be largely added to by construction during the

FROM MY OBSERVATION CAR.

By R. R. Jester.

The history of a successful railroad man always makes good reading—in fact it is inspiring. Mr. John Bickel, president of the Chicago Transportation Association, has made a record that any young man can feel proud of. He was born at West Point, N. Y., in 1866 and when ten years of age moved to Philadelphia where he attended school. In 1887 he entered the service of the Philadelphia & Reading as clerk, and after a few promotions he resigned to take service with the Lehigh and Wabash Despatch as contracting agent in Philadelphia, which position he resigned in 1907 to accept an office with the Wisconsin Central railway at Chicago.

Mr. Bickel is one of the charter members of the Chicago

JOHN BICKEL, PRESIDENT CHICAGO TRANSPORTATION ASSOCIATION.

Transportation Association, served first year as one of its trustees and a year ago was made its president. The fact that he has been selected to head the organization for the coming year, is assurance that he is popular with the railway fraternity of Chicago. He has been a hard worker for the organization and through his efforts the association has been favored with the addresses of railway officials of note. There is always something doing at the club meetings and as a general thing the Wisconsin Central gets its share of business in Mr. Bickel's territory. As to the Chicago Transportation Association it has an able official roster and is an organization that every eligible member should feel proud to be associated with.

The Interstate Commerce Commission is not yet compiling any tariffs issued by aerial navigation companies, but the time may come when papers will be publishing bulletins announcing trips and time-tables for airship routes, also may be publishing more accidents. The New Orleans Picayune recently published the following bit of information along this line: "While the airship 'Tom Fool,' of the Philadelphia and Baltimore Aerial Navigation Company, was hustling along her route early this morning, a strong wind current deflected her into a tall tree and brought about a smash-up. The tree remained uninjured. Seven passengers were killed and double that number hurt. We said for years that the flying machine would be a success." If anyone believes that such things do not happen, just let him get in one of the airships and try it. No thanks, I don't care to go along. But getting back to rates and schedules how would this do for a basis?

The High Air Navigation Company's new line of Lofty Birds will inaugurate through service January 1, between Chicago and New York via either Pittsburg or New Orleans or Hudson Bay, depending upon the direction of the breeze; no guarantee against seasickness or strikes; no extra charge for overtime en route less than two days; insurance policies can be secured at railway offices; rates strictly private; no extra charge for lunch baskets weighing less than 200 pounds per person; all our airships (that go up) are guaranteed to come down again and can float on fresh water.

* * *

What is the shortest railroad in the country? Can you answer? Is there any line shorter than the Union Industrial railroad of Aline, Okla.? It is three-fifths of a mile long and connects the Rock Island and the Kansas City, Mexico & Orient at Aline, but is owned by George Graham, who wished to get his elevator, alfalfa mill, etc., in connection with the roads, and built this connecting link. If you know of any shorter road than this, please send me a pass over it and its latest time-table.

* * *

Has anyone an idea how many railroad stocks and bonds are held in Europe? No doubt there are many millions invested by foreigners in American roads. Take for instance the Santa Fe, which has a large mileage. The annual report of that road, filed in Kansas, reveals the fact that its largest stockholder is Maatschappijtot Beheer Van Het Administratrick Ant Oor Opgericha Door Hubrecht Van Harcurspel and Van Visser, Amsterdam, Holland. This man, or company, or whatever it may be, has $9,953,500 invested in Santa Fe stock. Among others of the 21,044 stockholders are the following: Kuhn, Loeb & Co., New York, hold almost as much. They have $5,633,400 in common stock and $4,081,000 in preferred. Henry C. Frick of Pittsburg, the steel magnate, has $3,530,000 of common stock. Bering Bros., in London, hold $1,961,600 in common stock and $3,274,200 in preferred. Rothschild & Son, London, hold $1,377,000 in common and preferred. Leon Bros., London, hold $3,500,000 in common and preferred, and Huggins & Clark, London, hold $2,500,000. Robert Fleming of Dundee, Scotland, has $2,500,000. Thus you can see that many millions in dividends go to Europe every year from our railroad earnings.

CHICAGO TRANSPORTATION ASSOCIATION.

Last month the Chicago Transportation Association held a meeting at its club rooms at the Wellington Hotel, at which the following officers were recommended for the coming year: President, John Bickel, Wisconsin Central; vice president, Ernest G. Woodward, Chicago, Milwaukee & St. Paul; secretary, S. McClurkan, C., C. & L.; financial secretary, George H. Brown, Grand Trunk; treasurer, J. W. Betts, New York Central Lines. At the December meeting, to be held on the 14th, the above named officers are to be chosen and inaugurated. On November 23 the meeting was addressed by Mr. J. N. Tittemore, freight traffic manager of the Iowa Central, on "Federal Control," who said, among other things:

"There can be no objection to Government control of railroads any more than there can be objection to Government control of the individual; but the individual owner in a railroad or a corporation should not be regulated in a different manner from the individual who tills the land. Our courts will eventually hold that the transportation question is subject practically to control and regulation by the National Government. This will bring about uniform classification of freight and stable rates."

NATIONAL ASSOCIATION OF FREIGHT TRAFFIC AGENTS.

On November 14 the Cincinnati division of the National Association of Freight Traffic Agents held a meeting in Cincinnati at which the members entertained the Southern Classification Committee with a social program. President W. J. Byrth, of the National Association, made a brief address to the members and guests. The annual election of officers was held for that division, which resulted as follows: President, R. H. Morris, Southern Railway; first vice president, F. M. Stearns, Illinois Central; second vice, R. L. Myers, Missouri Pacific; treasurer, C. P. Bowsher, Missouri, Kansas & Texas; secretary, C. L. Netherland, Illinois Central.

The Louisville division held its annual meeting also last month, at which the following officers were chosen: President, T. B. McCabe, Illinois Central; vice president, Norton Jones; secretary-treasurer, Russell Houston, re-elected.

Important Notice: Be sure that all your communications are addressed to the Railway Journal, Chicago.

PERSONAL

EXECUTIVE, OPERATING AND PURCHASING.

Thos. Casey has been made yardmaster of the Rock Island at Chickasha, Okla.

H. H. Rogers has been made president of the Virginian Railway, vice **W. N. Page.**

J. E. Light has been made trainmaster of the Trinity & Brazos Valley at Teague, Tex.

W. W. Abbott has been made division superintendent of the Lehigh Valley at New York.

H. Clay Pierce of St. Louis has resigned from the executive board of the Frisco System.

Albert Newton has been made division superintendent of the Burlington office at Creston, Ia.

Otto Holstein has been made chief train dispatcher of the Cerro de Pasco, at Cerro de Paseo, Peru.

A. M. Ingersoll has been made vice-president of the Chicago, Milwaukee & St. Paul in Washington.

W. D. Knott has been made purchasing agent of the Atlanta, Birmingham & Atlantic at Atlanta, Ga.

Joseph Avinger has been made chief train dispatcher of the Louisville & Nashville at Earlington, Ky.

J. W. Ryan has resigned as general superintendent of the Salt Lake & Ogden, office, Salt Lake City, Utah.

C. M. Graves has been appointed general manager of the Spokane & Inland Empire; office at Spokane, Wash.

L. H. Phetteplace has been appointed superintendent of the Carolina, Clinchfield & Ohio at Johnson City, Tenn.

Daniel Royce has been made assistant to the director of purchases of the Harriman Lines, office in New York.

R. E. Woodruff has been made trainmaster of the Erie at Galion, O., vice **C. G. Smith,** transferred to Cleveland, O.

H. J. Titus has been appointed superintendent of dining cars of the Northern Pacific, with office at St. Paul, Minn.

H. G. Kruse has been made division superintendent of the Iowa Central at Oskaloosa, Ia., vice **C. S. Hayden,** resigned.

P. L. McManus, assistant to the general manager of the Southern Railway, has resigned and his office has been abolished.

R. L. Hearon has been made general manager of the Colorado & Wyoming and the Crystal River, office at Denver, Colo.

G. W. Everett has been made superintendent of the Mexican Central at Aguascalientes, Mex., vice **J. S. Reddick,** resigned.

J. K. Whitman has been made superintendent of materials and supplies of the Philadelphia & Reading; office at Reading, Pa.

William Jefferis has been appointed assistant superintendent of the Utah division of the Union Pacific at Green River, Wyo.

G. Latrobe has been made superintendent of the Union Railroad of Baltimore, Md., vice **H. W. Kapp,** assigned to other duties.

W. O. Miller has been made division superintendent of the Canadian Pacific at Vancouver, B. C., vice **J. C. Arundel,** promoted.

E. E. Bahford has been made assistant purchasing agent of the Mexican Central, office at New York, vice **E. A. Mason,** resigned.

E. K. Connelly has been made purchasing agent of the Pittsburg & Lake Erie, vice **R. Evans,** resigned; office at Pittsburg, Pa.

John F. Maguire has been made general manager of the Lehigh Valley, vice **M. B. Cutler,** resigned; office at So. Bethlehem, Pa.

A. G. Whittington has been appointed trainmaster of the Fort Worth division of the International & Great Northern at Mart, Tex.

J. A. Macgregor has been appointed superintendent of the Fourth district of the Canadian Pacific, vice **Allan Purvis,** transferred.

J. B. Wallace has been appointed superintendent of the Mexican Central, with office at Saltillo, Mex., vice **C. T. Norton,** transferred.

M. B. Cutler has been appointed general manager of the Iowa Central and the Minneapolis & St. Louis; office at Minneapolis, Minn. **C. S. Hayden** has resigned as superintendent of the Iowa Central.

H. J. Horn, formerly general manager of the Northern Pacific, has become associated with the C. Gotzian Shoe Co. of St. Paul, Minn.

John S. Peter has been chosen first vice-president and general manager of the San Antonio & Aransas Pass; office at San Antonio, Tex.

E. S. Kohler has been made division superintendent of the Burlington at McCoon, Neb., vice **E. E. Young,** transferred to Alliance, Neb.

L. W. Baldwin has been made division superintendent of the Yazoo & Mississippi Valley at Greenville, Miss., vice **J. B. Kemp,** resigned.

D. G. Wagner has been made trainmaster of the Atlantic Coast Line at Sanford, Fla., and **M. Crown** has been transferred to Lakeland, Fla.

J. F. Corbett has been appointed chief despatcher of the Oregon Railroad & Navigation Co. at Spokane, Wash., vice **J. Costello,** resigned.

Thos. B. Kennedy has been made trainmaster of the Cumberland Valley, in charge of both freight and passenger trains; office at Chambersburg, Pa.

F. W. Rothas has been appointed chief despatcher of the Montana division of the Oregon Short Line at Pocatello, Idaho, vice **F. M. Clarke,** resigned.

W. H. Thorn has been made general storekeeper of the Chicago, St. Paul, Minneapolis & Omaha, at St. Paul, Minn., vice **G. A. Gipple,** assigned to other duties.

George S. Cantilo, superintendent of car service of the Canadian Pacific, has been appointed also general superintendent of car service, with office at Montreal, Que.

Charles B. Rodgers has resigned as superintendent of the Burlington to become general manager of the St. Louis, Brownsville & Mexico, vice **J. N. Miller,** resigned.

W. E. Langley has been made assistant divison superintendent of the Houston & Texas Central at Austin, Tex. **W. F. Hall** has been made trainmaster at Houston.

N. G. Pearsall, general manager, and **J. H. O'Donnell,** car accountant, of the New Orleans Great Northern, have removed their office to Bogalusa, La., from Covington, La.

W. S. Cotterman, superintendent of telegraph of the Detroit, Toledo & Ironton at Toledo, Ohio, has resigned, and his duties are assumed by the general superintendent.

D. L. Pope, formerly dispatcher for the Illinois Central at McComb, Miss., has been appointed assistant to the chief dispatcher of the New Orleans Great Northern, at Covington, La.

D. W. Davis has been appointed superintendent of transportation in charge of car records and similar transportation matters of the Mobile, Jackson & Kansas City, with office at Mobile, Ala.

M. Nicholson has been made division superintendent of the Great Northern at Great Falls, Mont., vice **P. C. Allen,** transferred to Croonston, Minn., to succeed **F. S. Elliott,** who was made superintendent at Grand Forks, N. D.

Robt. W. Baxter has been made superintendent of transportation of the Lehigh Valley; office at So. Bethlehem, Pa. **C. T. O'Neal** has been made division superintendent at Buffalo. **C. A. Austin** is trainmaster at Jersey City.

J. B. Brennan, trainmaster of the International & Great Northern, has resigned to become assistant superintendent of the Houston division of the Galveston, Harrisburg & San Antonio, vice **F. S. Guthrie,** assigned to other duties.

J. J. Clarke, chief dispatcher and trainmaster for the Mexican railway, is appointed superintendent of transportation for the Mexican railway, vice **E. M. Wise,** resigned to go to the Pan-American railroad, as assistant to the president, at San Geronimo, Mex.

Donald Rose, general European agent of the Illinois Central, with headquarters in London, has been made assistant to **President J. T. Harahan,** with headquarters in Chicago, and is succeeded abroad by **J. H. Mallory,** commercial agent at Memphis, Tenn.

George H. Saunders has been made trainmaster of the Santa Fe at Arkansas City, Kans., vice **W. H. Fidler,** assigned to other duties. **R. H. Allison** has been made trainmaster at Chillicothe, Ill.; **F. E. Summers,** trainmaster at Marceline, Mo.; **E. Darling** becomes trainmaster at Raton, N. M.

C. F. Roberts, trainmaster of the Denver & Rio Grande at Salt Lake City, Utah, has been transferred to Tucker, Utah. **C. W. King,** chief despatcher at Salt Lake City, succeeds **Mr. Roberts. William Upton** succeeds **Mr. King. F. O. Haymond,** trainmaster at Tucker, has been transferred to Bingham Junction, Utah.

F. S. Guthrie, assistant superintendent of the Houston division of the Southern Pacific, has been appointed terminal trainmaster at San Antonio, Tex.

W. H. Jones has been appointed acting superintendent of the Idaho division of the Oregon Short Line at Pocatello, Ida., vice **George H. Olmstead,** granted leave of absence on account of ill health. **W. R. Armstrong** has been appointed acting superintendent of the Montana division at Pocatello.

S. G. Strickland, general superintendent of the Chicago, St. Paul, Minneapolis & Omaha, with office at St. Paul, has been appointed assistant general superintendent of the Chicago & North-Western lines east of the Missouri river, office at Chicago. **F. R. Pechin,** superintendent of the Wisconsin division of the Chicago & North-Western, succeeds **Mr. Strickland. G. W. Dailey,** superintendent of telegraph of the Chicago & Northwestern, succeeds **Mr. Pechin. William Bennett,** assistant division superintendent at Antigo, Wis., succeeds **Mr. Dailey. W. F. Armstrong,** assistant division superintendent at Escanaba, Mich., succeeds **Mr. Bennett. C. E. Helmer,** trainmaster at Escanaba, Mich., succeeds **Mr. Armstrong,** and **W. J. Keating** succeeds **Mr. Helmer.**

TRAFFIC AND ACCOUNTING.

William Shaw has been appointed general agent of the Burliugton at Indianapolis, Ind.

W. E. Rose has been made freight and ticket agent of the Ohio Central at Dunbridge, O.

E. P. Landon has been appointed traveling freight agent of the Pere Marquette at Boston.

C. H. Ogilvie has been appointed commercial freight agent of the Missouri Pacific at Cairo, Ill.

H. M. Moors has been made freight claim agent of the Southern Pacific at New Orleans, La.

Thad Franks has been appointed commercial agent of the Missouri, Kansas & Texas at Waco, Tex.

C. E. Redman has been appointed general agent of the Las Vegas & Tonopah at Goldfield, Nev.

V. S. Stiles has resigned as general passenger agent of the El Paso & Southwestern at El Paso, Tex.

M. B. Muxen has been made traveling passenger agent of the Chicago & Eastern Illinois at Dallas, Tex.

A. F. Massey has been appointed New England passenger agent for the Missouri Pacific at Boston, Mass.

W. D. Herring has been made general claim agent of the Houston & Texas Central, office at Houston, Tex.

J. S. Houston has been appointed general agent for the International & Great Northern at St. Louis, Mo.

George J. Allen has been appointed commercial agent of the San Pedro, Los Angeles & Salt Lake at Denver, Colo.

G. S. Wright has been made secretary and treasurer of the Evansville & Terre Haute, office at Evansville, Ind.

C. H. Walter has been appointed traveling freight agent of the Pere Marquette, with headquarters at Toledo, Ohio.

W. A. Nelson has been appointed general agent of the Erie at Jamestown, N. Y., succeeding T. F. Powell, transferred.

T. F. Powell has been appointed division freight agent of the Erie at Meadville, Pa., vice **W. A. Nelson,** transferred.

F. M. Lassiter has been appointed general agent of the freight department of the Southern Pacific at El Paso, Tex.

Charles Patton has been appointed traveling passenger agent of the Atlanta, Birmingham & Atlantic at Atlanta, Ga.

Martin Walsh has been appointed general freight and passenger agent of the Memphis, Paris & Gulf at Nashville, Ark.

J. S. Etchberger has been transferred as traveling freight agent of the Seaboard Air Line from Atlanta to Columbia, S. C.

R. A. Chadwick has been appointed assistant general freight agent of the Tennessee Central, with office at Nashville, Tenn.

J. F. Constans has been appointed general agent, freight department, of the Chicago, Peoria & St. Louis at Pittsburg, Pa.

Martin Walsh has been appointed general freight and passenger agent of the Memphis, Paris & Gulf, with office at Nashville, Ark.

E. B. Byers has been appointed contracting freight agent of the Illinois Central at Birmingham, Ala., vice **J. E. Estes,** resigned.

G. M. Graybell has been appointed traveling passenger agent of the Great Northern at Boston, Mass., vice **Jonathan Story,** resigned.

F. T. Grant has been appointed traveling passenger agent of the Canadian Pacific at Syracuse, N. Y., vice **D. H. Morse,** resigned.

H. J. Neff has been appointed traveling freight agent of the Trinity & Brazos Valley at Houston, Tex., vice **J. N. Steele,** resigned.

George J. Allen has been appointed commercial agent of the Macon & Birmingham at Nashville, Tenn., vice **J. F. Slowey,** resigned.

Guy L. Stewart has been appointed agricultural and industrial agent of the St. Louis Southwestern, with office at St. Louis, Mo.

W. A. Muse has been appointed traveling passenger agent of the Seaboard Air Line at Atlanta, Ga., vice **J. S. Etchberger,** transferred.

C. B. Van Skite, chief clerk in the claim department of the Santa Fe, has been appointed live stock agent at Fort Worth, Tex.

Frank J. McKenna has been appointed passenger agent of the New York Central at Niagara Falls, N. Y., vice **C. F. McDonald.**

C. n. Walter, freight solicitor of the Pere Marquette at Detroit, Mich., has been appointed traveling freight agent at Toledo, Ohio.

W. P. Overbay has been appointed traveling passenger agent of the Missouri, Kansas & Texas at Chicago, vice **Joseph Bowes,** resigned.

R. A. Chadwick has been appointed assistant general freight agent of the Tennessee Central, with headquarters at Nashville, Tenn.

O. C. Turlington has been appointed traveling freight agent of the Rock Island at Little Rock, Ark., succeeding **H. W. Stigler,** resigned.

W. H. Whittaker has been appointed district passenger agent of the Northern Pacific at Detroit, Mich., vice **Percy P. Armitage,** resigned.

J. T. Burns has been appointed northwestern passenger agent of the Canadian Pacific, Atlantic Steamship Lines at Minneapolis, Minn.

Peter L. Markey, agent of the Chicago, Milwaukee & St. Paul at Boone, Iowa, has been appointed traveling freight agent at Milwaukee, Wis.

L. E. LeHane has been appointed traveling freight and passenger agent of the Burlington at Tacoma, Wash., vice **Roy Kirkpatrick,** resigned.

G. A. Carter has been appointed commercial agent of the Missouri, Kansas & Texas at Dallas, Tex., vice **S. F. Baker,** assigned to other duties.

C. F. Daly, vice-president of the New York Central Lines, has his jurisdiction extended over all traffic, including freight, passenger, mail and express.

Charles D. Golding, commercial agent for the Rock Island-Frisco Lines at Houston, Tex., has resigned to go to the Pedent Iron & Steel Co., effective December 1.

R. D. Fields has been made city passenger and ticket agent of the Santa Fe at Beaumont, Tex., vice **M. B. Muxen,** resigned to accept service with the C. & E. I. Ry.

Charles Shackell, commercial agent of the Chicago, Milwaukee & St. Paul, at Des Moines, Iowa, has been appointed chief clerk of the tariff bureau at Chicago.

F. D. Burroughs has been appointed chief of the tariff bureau of the Chicago, Milwaukee & St. Paul at Chicago, vice **C. N. Turner,** resigned to accept service elsewhere.

J. N. Steele, traveling freight agent of the Trinity & Brazos Valley, has been appointed traveling freight and passenger agent of the Texas Midland, with office at Houston, Tex.

Charles N. Turner, formerly chief of tariff bureau, Chicago, Milwaukee & St. Paul, has been appointed traffic manager of the Milwaukee Coke & Gas Co., Milwaukee, Wis.

H. S. Jones, division freight agent of the Great Northern and the Burlington at Sioux City, Iowa, has resigned to engage in other business, and the position has been abolished.

John G. Jones has been appointed general agent for the states of Tennessee and Mississippi for the Illinois Central and the Yazoo & Mississippi Valley; office at Memphis, Tenn.

H. C. Stevenson, passenger agent of the Baltimore & Ohio Southwestern at Cincinnati, Ohio, has been appointed traveling passenger agent at Cincinnati, vice **J. H. Larrabee,** deceased.

R. K. D. Howell, commercial agent of the Georgia Southern & Florida at Nashville, Tenn., has been appointed traveling freight agent of the Atlanta, Birmingham & Atlantic at Cincinnati.

A. W. Arnold has been appointed city passenger agent of the Chicago Great Western at St. Joseph, Mo., vice **J. H. Cummings,** resigned to enter the freight department of the same road.

W. E. Seifer has been made local freight agent of the Missouri, Kansas & Texas at Waco, Tex. **C. A. Briggs** has resigned as city ticket agent at Ft. Worth to go into the coal business.

W. F. Rogers, soliciting freight agent of the Vicksburg, Shreveport & Pacific at New Orleans, La., has been appointed soliciting freight agent of the Queen & Crescent Despatch at New Orleans.

R. A. Belding has been appointed general agent, freight department, of the Chicago Great Western at 305 Broadway, New York, vice **W. H. Burk**, resigned to engage in other business.

J. H. Cummings has been appointed traveling agent of the Chicago Great Western for the state of Nebraska, with office at Lincoln, Neb., vice **C. A. Musselwhite**, resigned to engage in other business.

J. L. Bennett, city solicitor of the freight department of the Rock Island at St. Paul, Minn., has been appointed traveling freight agent for the Northwest territory. **R. T. Gourley** succeeds **Mr. Bennett.**

E. J. Vasey, freight agent of the Philadelphia & Reading at Reading, Pa., has been appointed freight agent at Wilmington, Del., succeeding **S. L. Bower**, resigned. **H. M. Jenkins**, station agent at Tower City, Pa., succeeds Mr. Vasey.

F. M. Thompson, traveling passenger agent of the Atlanta & West Point at Atlanta, Ga., has been appointed district passenger agent at Atlanta. **Clarence Wickersham**, city passenger agent at Atlanta, succeeds **Mr. Thompson.**

E. T. Reynolds, traveling freight agent of the Pere Marquette at New York, has been appointed eastbound agent at New York. **F. R. Yealland** succeeds **Mr. Reynolds. F. W. Goldie** has been appointed Pacific coast agent at Portland, Ore.

W. G. Paine, general passenger agent of the Spokane & Inland Empire, has been appointed traffic manager, having charge of both freight and passenger business. **J. H. Lothrop**, general freight agent, has resigned to engage in other business.

L. L. McCleskey, division freight agent of the Southern Railway at Atlanta, Ga., has been appointed assistant to the general freight agent at Atlanta. **Howell Peeples** succeeds **Mr. McCleskey**, and has charge of the Atlanta and Columbus traffic divisions.

C. C. Landers, division freight agent of the Wabash at Detroit, Mich., has been appointed division freight and passenger agent at Danville, Ill. **E. H. B. Cull**, contracting agent at Detroit, succeeds Mr. Landers, with office in the Majestic building, Detroit.

J. F. Fairlamb, general passenger agent of the New York Central and of the West Shore, has had his jurisdiction extended over the Boston & Albany. **A. S. Hanson**, formerly general passenger agent of the Boston & Albany, has been appointed general agent at Boston.

W. S. Howell, general eastern agent of the Chicago, Milwaukee & St. Paul at New York, has been appointed assistant general freight agent at Chicago. **George A. Blair**, commercial agent at Pittsburg, Pa., succeeds **Mr. Howell. J. H. Skillen**, commercial agent, succeeds **Mr. Blair.**

H. D. Landry, commercial agent of the St. Louis Southwestern at Cincinnati, has been appointed commercial agent at St. Louis, Mo., succeeding J. S. Houston, resigned. **R. W. Byrne**, traveling freight agent at Cincinnati, succeeds **Mr. Landry** and **R. B. Campbell**, soliciting freight agent at Louisville, Ky., succeeds **Mr. Byrne.**

The traffic departments of the Southern Indiana and the Illinois Southern have been separated. **H. P. Radley** has been appointed general freight and passenger agent for the Southern Indiana at Terre Haute, Ind. **J. T. Averitt** has been appointed general freight agent of the Illinois Southern with office at Chicago. **J. E. Windsor** will represent both companies as coal agent; offices in the Old Colony building, Chicago.

Joseph Lallande, chief clerk in the general freight office of the Morgan's Louisiana & Texas and the Louisiana Western, at Atlanta, Ga., has been appointed assistant general freight agent at New Orleans, La. **J. F. Terrell**, traveling freight and passenger agent at New Orleans, succeeds **Mr. Lallande. G. E. Guedry**, division freight and passenger agent at Lake Charles, La., succeeds **Mr. Terrell. D. Asbury**, traveling freight agent at Atlanta, Ga., succeeds **Mr. Guedry.**

The following appointments are announced on the Missouri Pacific-Iron Mountain system: **C. A. Parker** has been appointed traveling passenger agent at New York; **H. C. Young** has been appointed traveling passenger agent at Pittsburg, Pa.; **H. L. Pease**, city passenger agent at Chicago, has been appointed traveling passenger agent at Chicago. **H. C. McKenty** succeeds **Mr. Pease. J. F. Govan** has been appointed traveling passenger agent at Chicago; **Paul Escott** has been appointed traveling passenger agent at Chattanooga, Tenn., vice **I. E. Realander**, resigned; **Elmer Smith** has been appointed passenger and ticket agent at Memphis, Tenn., vice **C. E. Roundtree**, resigned; **W. E. Fitch** has been appointed southwestern passenger agent at San Antonio, Tex.; **J. H. Ginet, Jr.**, has been appointed traveling passenger agent at Denver, Colo.

ROADWAY AND ENGINEERING.

N. H. Jacobsen, principal assistant engineer of the Chicago & Western Indiana, has been appointed assistant engineer, succeeding **C. A. Smith.**

Frank T. Darrow has been appointed engineer maintenance of way of the Burlington, with office at Lincoln, Neb., vice **I. S. P. Weeks**, deceased.

Thomas Sinnott has been made roadmaster of the Oregon Short Line at Montpelier, Ida., vice **P. A. Pheney**, transferred to the Glenns Ferry district.

H. K. Lowry, signal inspector of the Chicago, Milwaukee & St. Paul, has been appointed assistant signal engineer of that road, to succeed **Mr. C. O. Harrington**, resigned.

W. R. Edwards, chief draftsman in the engineering department of the Baltimore & Ohio, has been appointed assistant engineer of bridges of the entire system, with office at Baltimore, Md.

F. J. Hemphill has been appointed signal supervisor of the Illinois division of the Rock Island at Ottawa, Ill. **G. W. Trout**, signal engineer of the St. Louis & San Francisco, has been appointed signal supervisor of the Missouri division of the Rock Island, with office at Cedar Rapids, Iowa.

A. B. Clark, assistant engineer of the West Jersey & Seashore at Camden, N. J., has been appointed assistant engineer of the Pennsylvania at Wilmington, Del. **J. C. Auten**, assistant engineer of the Eastern & Susquehanna division, with office at Williamsport, succeeds **Mr. Clark. W. T. Covert** succeeds **Mr. Auten.**

MECHANICAL.

C. J. Bushmeyer has been made general foreman of the Rock Island shops at El Reno, Okla.

Harry J. Hair has been appointed foreman of the Baltimore & Ohio Southwestern at Seymour, Ind.

G. W. Tessiers has been made general foreman of the car department of the Mex. Central at Mexico City.

J. D. Harris has been made general superintendent of motive power of the Baltimore & Ohio; office at Baltimore.

George J. Duffy has been appointed assistant master mechanic of the Lake Erie & Western at Lima, Ohio.

H. Carrick has been appointed assistant division master mechanic of the Oregon Short Line at Pocatello, Ida.

Manual Parra has been appointed master mechanic of the Mexican Railway at Apizaco, Tlax, Mex., vice **J. B. Cozart**, resigned.

J. H. Martin has been made master boilermaker of the Mobile, Jackson & Kansas City at Mobile, Ala., vice **T. J. Price**, resigned.

John Mooney has been appointed assistant superintendent of motive power of the Grand Trunk Pacific, with office at Rivers, Man.

R. F. Kilpatrick has been appointed assistant superintendent of motive power of the Denver & Rio Grande, with office at Denver, Colo.

J. F. Schneider has been appointed foreman of the machine shops of the Texas & Pacific at Marshall, Tex., vice **J. Robinson**, deceased.

P. F. Barton has been appointed master mechanic of the Delaware, Lackawanna & Western, vice **A. C. Adams**, resigned; office at Kingsland, N. J.

W. J. Spearman has been appointed general foreman of the Missouri Pacific, with office at Kansas City, Mo., vice **A. Hewitt**, assigned to other duties.

G. W. Foster has been appointed general foreman of shops of the Lake Erie, Alliance & Wheeling at Alliance, Ohio, vice **W. S. Jackson**, resigned.

C. F. Smith has been appointed master mechanic in charge of all steam and electrical equipment of the Tombigbee Valley, with office at Calvert, Ala.

R. C. Hyde has been made general foreman of the Rock Island at Trenton, Mo. **W. F. Scholtfeldt** has been made car foreman at Valley Junction, Ia.

H. F. Staley has been appointed master mechanic of the Carolina, Clinchfield & Ohio, with office at Johnson City, Tenn., vice **H. L. Hobbs**, transferred.

J. B. Cozart, master mechanic of the Mexican Railway at Apizaco, Puebla, Mex., has resigned to go to the Pan American Railroad at San Geronimo, Mex.

Alfred R. Kipp has been appointed superintendent of motive power and cars of the Wisconsin Central, vice **W. G. Menzel**, resigned, office at Fond du Lac, Wis.

J. M. James, master mechanic of the Pennsylvania at Olean, N. Y., has his jurisdiction extended over the Buffalo division, vice **Allen Vail**, retired on the pension list.

R. E. Smith, road foreman of engines of the Canadian Pacific at Medicine Hat, Alb., has been appointed master mechanic, with headquarters at Medicine Hat.

M. S. Monroe, master mechanic, and **J. P. Callahan**, master car builder, both of the Chicago, Lake Shore & Eastern, have moved their offices from So. Chicago, to Gary, Ind.

D. D. Robinson has been made master mechanic of the Lehigh Valley at Wilkesbarre, Pa., vice **A. M. McGill**, made general inspector of motive power and rolling stock.

Z. A. Burrell has been made roundhouse foreman for the Santa Fe at Bakersfield, Calif., vice **J. W. Griffiths**, resigned to accept a position in the shops of the D. & R. G. at Salt Lake City, Utah.

J. E. Hickey, master mechanic of the International of Mexico, has been appointed superintendent of shops of the Mexican Central at Aguascalientes, Mex., vice **G. F. Tilton**, assigned to other duties.

J. T. Connor has been appointed acting superintendent of motive power and machinery of the Houston, East & West Texas, the Houston & Texas Central and Houston & Shreveport, vice **S. Millican**, deceased.

J. T. Robinson, master mechanic of the Seaboard Air Line at Savannah, Ga., has been appointed master mechanic at Jacksonville, Fla., succeeding **H. P. Latta**. **J. W. Sasser**, general foreman of shops at Raleigh, N. C., succeeds **Mr. Robinson**.

A. J. Wade has been appointed master mechanic of the Louisiana & Arkansas at Stamp, Ark., vice **F. A. Symonds**, resigned. **D. E. Meyers** has been appointed foreman of the motive power and car departments at Minden, La., succeeding **J. B. Beaird**, resigned.

C. A. Ryder has been made master boilermaker of the Louisville & Nashville at Mobile, Ala., vice **J. M. Williams**, resigned to accept service with the Gulf City Boiler Works of that city. **R. A. Webster** has been made assistant master boilermaker of the L. & N. at Mobile to succeed **Mr. Ryder**.

F. K. Tutt, master mechanic of the Missouri Pacific at Osawatomie, Kan., has been appointed master mechanic at St. Louis, vice **J. J. Reid**, resigned. **M. M. Myers**, master mechanic at DeSoto, Mo., succeeds **Mr. Tutt**, and **P. J. Conrath** succeeds **Mr. Myers**.

A. R. Ayers, assistant superintendent of shops of the Lake Shore & Michigan Southern at Collinwood, Ohio, has been appointed assistant master mechanic at Elkhart, Ind. **F. H. Reagan**, general foreman of the Collinwood shops, succeeds **Mr. Ayers**, and **B. F. Kuhn**, engine house foreman at Ashtabula, Ohio, succeeds **Mr. Reagan**. **W. S. Jackson**, general foreman of shops of the Lake Erie, Alliance & Wheeling at Alliance, Ohio, succeeds **Mr. Kuhn**.

T. P. Dunham, foreman of the Holidaysburg shops of the Pennsylvania, has been transferred to Roundhouse No. 3 at Altoona. **P. C. Kapp**, foreman of the state line shops, succeeds **Mr. Dunham**. **C. D. Barrett** succeeds **Mr. Kapp**. **P. C. Staley**, foreman of the Mifflin shops of the Pennsylvania, has been transferred to the Altoona car shops. **E. H. Newberry**, assistant engine house foreman at Derry, Pa., succeeds **Mr. Staley**. **G. C. Schneider**, inspector at Renova shops, succeeds **Mr. Newberry**.

OBITUARY.

J. E. Johnson, master boilermaker of the T. & P. at Big Springs, Tex., died on November 6.

E. V. Skinner, assistant traffic manager of the Canadian Pacific, died on November 7, aged 59 years.

Edward D. Hayden, vice-president and secretary of the Boston & Albany, died on November 15, aged 74 years.

Thomas Greenway, a member of the Board of Railway Commissioners of Canada, died of pneumonia October 30, at Ottawa, Ont.

J. H. Larrabee, for 10 years traveling passenger agent of the Baltimore & Ohio Southwestern at Cincinnati and Chillicothe, Ohio, died at Chillicothe on November 4.

Charles Hartshorne, formerly vice-president of the Lehigh Valley, died October 30 at Marion, Pa. He was born in 1829 at Philadelphia, Pa., and began railroad work in 1857.

W. D. Cornish, vice-president of the Union Pacific, the Southern Pacific, and of the Oregon Short Short Line and the Oregon Railroad & Navigation, died November 7 at Chicago from heart disease, aged 56 years.

CONCRETE RAILWAY TIES.

U. S. Consul C. Coleman, of Rome, Italy, furnishes the following information about the concrete ties used in that country: The Italian government has ordered 300,000 of these ties, which are now in course of construction. A few thousand of such ties, ordered for experimental purposes, were constructed by the Gabellini company some years ago and have been used on the railroad from Castellamare-Adriatico to Ancona. As a result of the trials to which the ties were subjected a new design, to be employed in executing the present large order, will replace the old. The principal change will, it is understood, be found in the introduction into the concrete mass of a larger number of the re-enforcing metallic bars, of reduced diameter, in the new design of ties.

The cost of a concrete tie is estimated at about $1.20, and it is believed that its endurance will be from three to four times as great as that of a wood tie. A tie will weigh 286 pounds, inclusive of the weight of the metallic re-enforcement, about 28 pounds. A comparison of the respective cost and value of concrete and wooden ties would no doubt give different results in the United States from those afforded in the Italian estimates, owing to varying conditions in the two countries affecting local cost of materials and manufacture, endurance, etc. The belief is largely entertained here that the concrete tie will eventually entirely replace wood tie.

PROGRESS ON THE ORIENT.

Late in November President Stilwell, of the Kansas City, Mexico & Orient, is quoted as saying:

"The Sweetwater gap will be finished in the course of a few days. Our first important through connection was made with the Colorado & Southern at Chillicothe, Tex., during October, and five new stations opened. Earnings at once began to show an increase, and for October were $113,000, the largest for any one month in the history of the road, and an increase of $32,000 over September. A through train service will be inaugurated about December 1, Wichita to Sweetwater, giving us in this one section 432 miles of connected track, and putting us in a position to do through business with the Colorado & Southern and Texas Pacific. In spite of the panic, we have during the past year laid 135 miles of track. We now plan to finish the track to San Angelo, giving us the business of one of the most important cities on the line, and affording a valuable connection with the Santa Fe road. All of the grading between Sweetwater and San Angelo is completed, and with the track completed to San Angelo we will have 510 miles of track in one section. To aid us in this work we have just sold in London $575,000 6 per cent five-year notes, and are offering the States $100,000 6½ per cent two-year notes."

DAM CONSTRUCTED BY THE ROCK ISLAND.

One of the finest pieces of construction work of its kind is the dam built across the canyon between Santa Rosa and Tucumcari, N. Mex., by the Rock Island, the illustration of which is herewith reproduced. This work was constructed to catch the water from the canyon for the company's engines and other purposes. The lake formed by the dam covers considerable ground, is quite deep and never goes dry. It illustrates one of the many extra expenses a road has to go to in order to operate through a country that is not already supplied with ample water.

CONSTRUCTION AND IMPROVEMENT.

Cement is used quite successfully for roofing at Lyons, France.

The Bayfield Transfer is projecting a 70-mile extension from Bayfield, Wis., to Superior.

The Florida & Georgia Railroad proposes to construct about 20 miles of new road this season.

The California Northeastern is building a line from Calor, Calif., to Klamath Falls, about 20 miles.

The Columbus & Southern is locating a line from South Bloomingville to Hamdin Junction, 34 miles.

The Colorado & Southern has recently located a survey between Pueblo, Colo., and Walsenburg, 56 miles.

According to press reports the Utah Copper Co. is to build a 19 mile road between its mines and Garfield, Utah.

The Buffalo, Genesee & Rochester is a proposed electric line that is to be built between Rochester, N. Y., and Depew.

The Dakota, Kansas & Gulf has been chartered in Kansas to extend from Beloit, Kan., to Kearney, Neb., 110 miles.

The Frisco has recently placed orders for 500,000 tie plates and 50,000 pounds of angle bars to be used on its lines.

The Canadian Northern is constructing about 100 miles on the Goose Lake branch, over half of which is about completed.

The National Lines of Mexico have ordered about 20,000 tons of heavy steel rails to replace the old ones on the mountain divisions.

The Stamford & Northwestern, general offices at Stamford, Tex., is contemplating extending northwest about 65 miles early next year.

David Light, of Sherman, Tex., is said to be promoting a line from Sherman to San Antonio, which is to be operated by electricity.

The Spokane & Inland Empire is to expend about $1,000,000 in tunnel construction work at Spokane, Wash. Mr. P. Graves is president.

Mr. Stephen Smith, of Birmingham, Ala., is interested with others in a proposed road to run from Birmingham southwest about 20 miles.

The Canadian, Liverpool & Western is a new company, of which Messrs. Smith and Johnson, of Ottawa, Can., are interested, and which proposes to build extensively the coming season.

Since the Mexican Southern secured control of the Oaxaca & Oriental railroad it is understood that the road is to be extended to the Pacific coast or to connect with the Tehuantepec National.

Dr. C. F. Simmons, of Simmons City, Tex., is said to be backing a road to be built between that point and San Antonio, Tex., 40 miles. It is reported that a portion of the grading is contracted.

An officer of the Santa Fe system states that work has been resumed on the Texas & Gulf extension. This line will run from Zuber to Center, Texas, and will be 21.3 miles long with six-tenths grade.

Albert M. Dewey, of Spokane, Wash., is president of the Okanogan Electric Ry. Co., which is incorporated to build a line from Nighthawk, Wash., to a point on the Columbia river,

DAM BUILT BY THE ROCK ISLAND IN NEW MEXICO.

The Alabama & Mississippi is the name of a road being built, about 12 miles, by the Vinegar Bend Lumber Co., of Fruitdale, Ala.

The New York, New Haven & Hartford opened its double track tunnel between Providence and East Providence, R. I., on November 15.

P. E. Griffith is president of the Norfolk Dock & Terminal, of Norfolk, Va., which is to build considerable docks and terminals at that point.

President Hays, of the Grand Trunk Pacific, is quoted as saying that the road building to the Pacific is to be completed by about January, 1911, in two years.

J. W. Webb, of Beaver, Okla., is president of the Beaver Valley & Northwestern, which is projected to be built from Gage west 100 miles to Hooker, Okla.

G. W. Adams, of North Branch, Ia., is president of the Iowa & Omaha Short Line, which is proposed to build from Council Bluffs to Des Moines, Ia., 125 miles.

The Western Pacific has track laid west from Salt Lake City about 235 miles and 160 miles are now in operation between Salt Lake City, Utah, and Shaffter, Nev.

The Oregon Railroad & Navigation Co. has been receiving bids for the construction of tunnel at Tacoma, Wash., that is to be 8,700 feet long and to cost about $3,000,000.

The Canadian Pacific is arranging to extend from Panticon to Coultee, B. C. The company has just completed a line between Asquith and Wilkie, Sask., about 75 miles.

The Shreveport Northeastern is about completed between Shreveport, La., and Homer, 47 miles. It is proposed to extend the road north into Arkansas and perhaps to Memphis, Tenn. about 80 miles. Horace B. Skinner is superintendent of construction; office at Spokane.

The Colorado & Hereford Gulf is being built from Hereford to Adrian, Tex., about 35 miles. A. D. Goodenough, Hereford, is general manager. It is proposed to run the road from Dalhart to San Angelo, Tex.

The Rock Island-Frisco lines in Louisiana have completed a large bridge over the Atchafalaya river, which will permit of the extension to the Mississippi river at Baton Rouge, to be completed before the first of the year.

The Central Arkansas is an electric line that is projected from Little Rock, Ark., to Pine Bluff and Hot Springs. General offices of the company are at Little Rock, where the election of officers will be held early in January.

The Missouri & Northern Arkansas is completing a steel bridge over the White river on its new extension in Arkansas, and by the early part of January expects to have 340 miles of road in operation. The main offices are at Eureka Springs, Ark.

The Colorado Construction Co., of Mangum, Okla., has the contract for building a portion of the proposed Colorado, Texas & Mexico, which is projected to run southwest from Mangum into Texas about 500 miles, and of which a portion is graded.

The Clinton & Colorado Springs is being promoted by Mr. C. C. Coolman, of Ft. Smith, Ark. It is proposed to run the road from Clinton, Okla., to some point in Colorado, passing through the Pan Handle of Texas. Construction work on a portion of the road is to start at an early date.

H. R. Nickerson, general manager of the Sierra Madre railroad, in an interview at Mexico City stated that he has secured concessions and will immediately extend the road from

its present terminus south of El Paso to the Yaqui river in Sonora, connecting there with Harriman's new Yaqui river line from Guaymas.

The Virginia Railway has let contracts for the construction of the winding Gulf branch of the road, the work to begin at once. This branch will cover a distance of 25 miles, extending from Mullins, W. Va., where the Virginian crosses the Guyandotte river, to Pemberton, and in its course will reach large coal deposits.

A dispatch from Oklahoma City of November 28 says it is reported from Altus that St. Louis capitalists have purchased stock in the Altus, Roswell & El Paso Railroad Co. and that work will be commenced within a very short time, building the line from Altus to Childress, Tex., and on to El Paso. Childress has been selected as headquarters for the Texas terminus of the road.

The Mexican Central's extension from Tuxpan to Colima, Mex., has been completed, which connects the Pacific coast branch with the road extending east from Manzanillo, and gives the Mexican Central a transcontinental line, extending from Tampico on the Gulf of Mexico to Manzanillo on the Pacific, about 1,031 miles. The new extension passes near Mount Colima, which at times is said to be a violent volcano.

A report from Childress, Tex., states that President Kennedy, of the Altus, Roswell & El Paso Railroad, announces that the road from Altus, Okla., to Childress had been leased to the Kansas City, Mexico & Orient. The Stilwell interest will have complete charge. Track laying will begin immediately from both Altus and Childress. The road crosses the south part of Greer county, Oklahoma, and enters Childress from the northwest.

A report has been received from an American consular officer in a Latin American country stating that the ministry of public works is preparing bids which are to be asked for broadening a port and the construction of a maritime canal between the port in question and one of the rivers of the country. The full report and copy of plan showing the proposed route can be obtained by interested parties from the bureau of manufactures, at Washington, D. C.

The Burr's Ferry, Browndel & Chester Railway, of which John H. Kirby, of Houston, Tex., is president, is now operating 10 miles of line from Rockland to Turpentine, Tex., and J. A. Turner, superintendent, is reported as saying that an extension of 18 miles to Browndel is graded and rails have been received to lay track, which work will be started in January. The bridges are already in position. This will make the line 28 miles long from Rockland to Browndel, Tex., with an average grade of 1 per cent.

The Brazilian Review, in a recent issue, states that the government has signed a contract with the firm of Proenca Echeverria & Co. for the construction of the Sao Luiz to Caxias Railway and the Itaqui branch in the state of Maranhao. The government stipulates that the work shall be completed within a period of 40 months, dating from the signature of the contract. Apart from the laying of the line the most important piece of work will be a bridge over the Rio Mosquito, and this will be constructed by the contractors or by third parties, as the government shall decide.

Morgan Jones is reported as saying that grading has begun on the line from Abilene to Winters, Tex., 35 miles, at a point five miles north of Winters. This proposed line is referred to both as the Abilene & Southern and the Ballinger & Abilene Railway, the line under the latter name having been chartered last winter by C. A. Doose, of Ballinger, and others to build from Ballinger via Winters to Abilene, 53 miles. Mr. Jones promoted the Abilene & Northern Railroad from Abilene to Stamford, Tex., now in operation. Further information can be secured from Mr. Jones at Ft. Worth, Tex.

U. S. Consul Drew Linard, of Ceiba, says that an American company has obtained from the government of Honduras a valuable concession, including land grants, to construct a railway from Truxillo, on the Atlantic, to Tegucigalpa, the capital. The company has a capital stock of $10,000,000, and has been incorporated in Arizona. The actual work of grading, according to the best information, will be begun as promptly as the necessary details can be arranged for the shipment of construction plant and stores to Truxillo. The road will be about 340 miles long.

It is reported that the Mexican government will soon make extensive improvements on the jetties and harbor at Tampico. The jetties are to be extended into the gulf. The present wharf is 800 meters long, 16 meters wide and 2½ meters above the river at normal tide. It is constructed of steel and concrete, the only wood used being the decking and fender timbers. It rests on steel cylinders 6 feet in diameter and sunk from a varying depth of from 40 to 60 feet. These were then dredged out and piles driven inside from 60 to 80 feet long, and the whole filled in with concrete. The dock rests on heavy steel girders filled in with concrete, on which is the wooden deck.

It is reported that the senate of Argentina has approved the construction of various lines by the Central Argentine & Buenos Aires and Rosario Railways in the province of Cordoba and Santa Fe, and the duplication of the line throughout its entire distance between Buenos Aires and Rosario. The Western Railway, Southern Railway, Eastern Railway and Pacific Railway have also received numerous concessions. The lines conceded to eight railway companies of recognized standing extend to 3,257 miles, and are estimated to require a capital of $5,000,000. Some of these lines are already under construction or survey. A number of concessions have also been granted to private companies and persons.

A Winnipeg, Man., dispatch, under date of November 28, says: Today another branch railway began operation in western Canada, when the Grand Trunk Pacific line, running from Fort William to Lake Superior Junction, where it joins the main line from Winnipeg to Quebec, was opened. It runs 200 miles and will be a wheat route during the season of navigation. The work of locating the main line of the Grand Trunk Pacific railway between Edmonton, Alberta and Prince Rupert, British Columbia, has been completed. It has occupied nearly two years. Survey parties employed in the vicinity of Fort George in Central British Columbia formed the last of the big force in the field, and they reached Ashcroft yesterday.

The charter of the Gulf, Texas & Western Railway Company has been approved to build a line from Burr's Ferry, Tex., to Benjamin, Tex., about 500 miles, and Ben B. Cain, of Tyler, Tex., is reported as saying construction will begin before January 1. An officer of the company states that the new road has taken over the Dallas & New Mexico Railway Company's properties, and he confirms the report of charter, with the following directors: President, Roy C. Megargel, New York; vice-president and general manager, Ben B. Cain, Tyler, Tex.; treasurer, W. Frank Knox, Tyler, Tex.; secretary, J. W. Pinson, Jacksboro, Tex.; J. J. Jermyn and R. B. Williams, of Scranton, Pa.; Oliver Loving, of Jacksboro, Tex., and L. M. Dabney, of Dallas, Tex.; headquarters at Dallas.

The RAILWAY JOURNAL'S correspondent at Spokane, Wash., writes: Regarded by engineers as a marvel of construction is the Spokane, Portland & Seattle railway, 423 miles, the most direct line between this city and Portland, which will be completed January 1, 1909. The road, built jointly by the Great Northern and Northern Pacific systems, is the most expensive in America, the cost of much of it ranging from $250,000 to $500,000 a mile. Twenty-five miles of track remain to be laid between Spokane and Paseo, and this work will be completed in two weeks. Besides this there are two bridges a mile apart near Devil's canyon. One is 1,100 feet in length and 220 feet high, while the other is 1,000 feet long and 160 feet above the ground in the center.

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CONFESSIONS OF A RAILWAY SIGNALMAN.

An interesting book under the title of "The Confessions of a Railroad Signalman" is just from the press of the Houghton Mifflin Company, of Boston. The work is from the pen of Mr. James O. Fagan, who has been a signalman in railway service for 22 years. The book is a contribution to the present discussion of railroad management and control from a new point of view. The work is neatly compiled, illustrated and written in a very pleasing style, and to anyone interested in this service it is well worth the price asked by the publisher, $1 per copy. Mr. Fagan's service has been on roads in the New England states, and he seems to be an expert in his field.

Early in December the Chicago, Milwaukee & St. Paul extended mail service over its western extension between Miles City and Butte, Mont.

MECHANICAL

A WORD TO ROUNDHOUSE FOREMEN.

Editor RAILWAY JOURNAL:

In the November issue of Railway and Locomotive Engineering I noticed an article from the pen of Mr. Glover, in which he agitates the formation of a roundhouse foremen's association.

I would like to state through the columns of the RAILWAY JOURNAL that there is just such an association in existence and has been the past four years; it is called the International Railway General Foremen's Association, composed of general foremen, shop superintendents, machine shop foremen and roundhouse foremen. I do not know whether Mr. Glover is aware of the fact or not, but such is the case. I would suggest to Mr. Glover that he procure an application blank from Mr. E. C. Cook, secretary-treasurer of the association, 506 Royal Insurance building, Chicago, Ill., and become a member. We need a few more just such members as he would make—men alive to the interests of an association of this kind, men who will take hold and work, and I am under the impression that Mr. Glover will, because if a man will advocate the formation of an association of this kind he has the work in his heart, and he certainly would make a good man in our ranks. I would be more than pleased to have him with us.

The aim of the association is to make our services more valuable to the railroads we represent and to provide more competent assistance for our superiors, and, while it may seem selfish, our hope is to better fit and prepare ourselves to fill higher positions.

The object of the association is to bring the members together, get their ideas on the subjects brought up before the convention, either on the floor or by a paper, thoroughly discuss them, so that when we go back home and get into the harness again we may apply some of the ideas in our every day life, thereby bringing profit to our employers and enhancing our own value to the company we are working for.

The more members we have, the more ideas are disseminated. Don't try to split up an organization of this kind as the larger it becomes the more good it will do you; instead, identify yourself with it; put your shoulder to the wheel and work for the success of an institution which is doing so much good for the betterment of locomotive service. L. H. BRYAN.

Secretary Executive Committee International Railway General Foremen's Association. Two Harbors, Minn., November 30, 1908.

MODERN SHOP CONSTRUCTION.

At the recent convention of the International Railway General Foremen's Association papers were presented on the above topics, two of which were reproduced in the November issue of the RAILWAY JOURNAL. The following is from Mr. D. E. Barton, general foreman of the Santa Fe shops at Topeka, Kan.:

As many of the members of the International Railway General Foremen's Association are interested, principally in the working of a shop after it has been constructed, the discussions which will follow, will be naturally on that line, thus this paper will be confined to that feature. The subject, however, carries with it, besides the use of shops for constructing and repairing locomotives, the manufacture of parts used, at that particular shop naturally on that line, thus this paper will be considered.

It is said of a certain manufacturing plant which builds many locomotives, the two principal factors, proprietors and constructors, were diametrically opposite in their methods. One would adopt methods, ways and means used by others in the same business to improve constructive methods and finished output; while the other one must have something original. It was said that they made a good team and rapidly improved on their own construction, and were foremost in the race to bring to the present, almost perfect state of usefulness, that "monster," which brings the products of one part of the hemisphere to the doors of the users thousands of miles away and trading the commodities of one locality for that of another, building up a commerce that will survive even the "big stick," or the "big slipper," as it has been recently called.

The construction of the modern locomotive repair shop, which has gradually evoluted from the primitive "back shop" and which was accessible only from one or two of the various round house stalls, usually placed in front of it (hence back shop) or perhaps from a track or two located so fuel and material on the cars which came in off the road could be run to the rear of the blacksmith shop, which was generally located in the rear of the erecting and machine shop.

From this gradually worked out the idea of a second turntable, other than the one at roundhouse proper, with its tracks leading to various parts of the back shop, with the machine shop in turn located along the ends or terminals of these tracks. It was then found that a track was necessary to transport material from these tracks, longitudinally, with line shaft from which the various machines were driven and conveniently located. The material was stripped from the engine, dragged out on little wagons and carts of every design imaginable, until it reached these tracks, where it was loaded on trucks and run either to the machines or to a dirty corner of the shop (later a lye vat), where it was cleaned and run to various departments.

This is old and uninteresting history to most of us; but it leads us to the point where the educated sons of the principal stockholders and prominent officials came in to help take care of the vast properties of their sires. Later this property was to become their own and must be taken care of and run in such a way that a fair return on money invested would result. These gentlemen found that it cost money to jack up even a forty-ton engine, place it on blocks, high enough to run large diameter wheels out from under cylinders, which hung down from the frame and boiler and which were getting larger and even added to by reason of compounding. These would hang down still further as new and more modern equipment was purchased and were more and more in the way of removing driving wheels until the result was that engines were blocked up so high and required so much good blocking, heavy to handle, and in the way when in use or not in use. They were so high after being raised that it was dangerous to go near them and also much less convenient to do work on them. After the wheels were out they must be turned quarter around when they got to the tracks, which served the machines for turning tires and did other necessary work.

It also cost money and required the time of a high priced foreman to chase up and down, through, between and around these engines and stir up lazy and indifferent workmen and some alert apprentices and helpers, to get material off the engines to proper places for treatment and back to place again. It was thought quite the proper thing to provide transfer jacks and communicating pits, so the wheels could be removed, by merely setting jacks under each end of the frames, taking the weight and removing one wheel at a time, placing the frames and boiler on temporary wheels and axles. The engine was then moved along until all wheels and trucks were out and then the engine was switched to other tracks until ready to wheel again. This involved expense, a switch engine was not always available and it cost money to pinch engines. Where? Why out to turn table, of course, and then back again on some of the available tracks. Better build a transfer table, then we would not have to pinch it so far, put a small pair of reversible engines on the table with a rope hauling device. By this means, the engines were pulled out and in turn pulled in again on the unused track, the men who did the pinching could be sent to where tires were removed and applied and set to doing that work, but that is another story.

Now, by this time the sons of these sons of their fathers were coming out of their technical training schools with new and improved ideas. Now the discussion is fairly on, competition has begun. Engineers of shop construction have come into

the field. Experts are employed and large contracting firms have developed systems and have on hand plans of shops of recent construction which are operated with economy at various places and which cover different conditions and are suited to the localities where some have been built or contemplated. Take your choice, gentlemen, recently constructed with transfer tables and transverse pits. Out of twenty such and such shops shown in "Railway Shop Up To Date," recently compiled by editorial staff of the Railway Master Mechanic, fifteen of them show one or more transfer tables which are used to place engines in and out of erecting shops. This would necessarily make the locomotives stand on cross pits. But five of these have track approaches to erecting shop and must therefore call for longitudinal pits. Some of both of the mentioned are car shops, but must, of course, handle material and distribute it to proper places.

The locomotive shop, which is the most important in this discussion, is elaborately treated on pages 36 to 73. One of the contributors to this treatise compiled by Railway Master Mechanic, Mr. R. H. Soule, who stands at the head of authorities on railroad shop construction and who was originally chairman of the committee on shop lay-outs, who reported their findings to the American Railway Master Mechanic Association, 1905. He sums up the situation very concisely in nine items, which cover almost every phase of the situation. I have copied them:

Item 1. "The longitudinal shop can be placed parallel to a general line of tracks and entered by direct track connections, while with the transverse shop, if placed parallel to a general line of tracks, it must be entered by a turntable.

Item 2. From a structural standpoint the distance between roof trusses over erecting floor in the longitudinal shop can be determined by conditions of economy alone. In the transverse shop this distance must be the same as spread of stall tracks, whether economical or not.

Item 3. The longitudinal shop is less compact and the transverse shop more compact.

Item 4. Considering access from shops, in the longitudinal, traffic must be across the pits. In the transverse shops it is not necessary to cross pits.

Item 5. Lighting, both day and night, is more difficult in the longitudinal shop and in the transverse shop is easier and better.

Item 6. In lifting engines in the longitudinal shop it is necessary to lift them only high enough to clear driving wheels, consuming less time, while in the transverse shop, engines have to be lifted enough to clear adjacent engines, consuming more time.

Item 7. In moving engines horizontally in the longitudinal shop less distance is covered under average conditions. In the transverse shop more distance is covered under average conditions.

Item 8. In dropping engines on their wheels in the longitudinal shop this work includes more use of cranes and less manual labor (in handling wheels) while in the transverse shop this work is done with less use of cranes and more manual labor.

Item 9. As a summary of these various points, greater flexibility is attributed to the longitudinal shop and less to the transverse shop.

In discussing these several items Mr. F. F. Gaines, then mechanical engineer of the Philadelphia & Reading Railroad, argues as follows:

Item 1. The first item may be stricken out from general consideration, as it applies only to localities where the ground space is limited and governs a design rather than the general utility of the shop itself.

Item 2. From data given in report it is seen that the width of bays necessary with either class averages nearly the the same, being sixty-five and one-half feet for the longitudinal, sixty-three and one-fourth feet for transverse, with cranes on two levels.

Item 3. Admits desirability of transverse arrangement.

Item 4. Admits desirability of transverse arrangement.

Item 5. Admits desirability of transverse arrangement.

Item 6. Lifting Engines: Unless at all times the middle track of the transverse shop is kept open, or sufficient space between the tracks is left for standing an engine, it will be necessary to lift engines over other engines, either to bring them in or take them out. If the middle track is kept open or space between the tracks is allowed it becomes a very uneconomical distribution of floor space. On the other hand, granting it takes more time to lift engines in a transverse shop, which is questionable, the amount of such time is small and effects only a very small percentage of the force.

Item 7. For the same reasons as given under Item 6, it is questionable if it is at all favorable to a longitudinal shop.

Item 8. If the work is handled properly there is absolutely no difference in either system, in either time or manual labor.

Mr. Gaines adds two items not included in Mr. Soule's summary, which cover the distribution of material. One refers to access to machines and movement of men to and from tool room and it is decidedly in favor of the transverse shop arrangement; and the other covers the storage of wheels handling storing locomotive parts during repairs, the transverse shop affording much more flexible arrangement as well as keeping the shop looking much neater. Item 9 being a summary of various points for and against the two systems, would then appear as follows:

With Items 1, 2, 6, 7 and 8 equally favorable and Items 3, 4 and 5, in addition to the two items by Mr. Gaines, he considers the summary in favor of the transverse arrangement.

From the above it would surely indicate that modern construction favors transverse shop.

CAR LIGHTING ENGINEERS.

The Association of Car Lighting Engineers held its first annual convention in Chicago on November 16. This association was organized a few months ago and has developed into a strong, active body of railway electrical engineers. It is an organization that deserves the encouragement of the railway management.

The following is the list of topics published as the routine program:

"History of Car Lighting," by P. Kennedy, of the Consolidated Railway Electric Lighting & Equipment Co.

"History of Axle Lighting," by W. L. Bliss, of the "Bliss Electric Car Lighting Co.

"Railway Train Lighting," by A. H. Bauer. Committee reports on the following topics: "Illuminating and Distribution of Lights in Cars," "Care and Maintenance of Storage Batteries," "Straight Electric Lighting of Cars," "Head End System," "Lamps," Axle Lighting," "Straight Storage Lighting," "Organizing and Systematizing of Work," "Train Connectors and Wiring of Cars."

The electrical supply firms were well represented and made numerous exhibits of devices, supplies, etc. These men also helped to entertain the railway men and give them a good time socially. A banquet at the Grand Pacific was among the pleasant features of the social program.

The topics were freely discussed by the members. The election of officers resulted in the re-election of the former president and secretary-treasurer, Messrs. A. J. Farelly, of the C. & N. W. Ry., Chicago, and G. B. Colegrove, of the Illinois Central, Chicago. The next annual convention is to be held at Chicago on October 5 to 8, 1909.

PRAISES AMERICAN MACHINERY.

A leading dealer and importer of American machinery in Rotterdam writes to the U. S. Consulate General as follows, which is a deserved compliment to American business methods and workmanship:

"We may say that we have a rather good insight into not only the American, but also the English, German, and French machinery markets, as we do a great deal of business with American machine tool markets, we can only speak in the highest praise, as they are in every way most fair and gentlemanly. Should there be any complaints, these are invariably met by the majority of manufacturers in the most cordial manner. There is no trying to get rid of complaints; on the contrary, these are cheerfully met and the utmost is done to satisfy the customer. It is partly for this reason that Hollanders prefer purchasing American tools and, further, because they know that the design is original and that guaranties can generally be relied upon. Their construction, design, finish, workmanship, and shapes are always favorably considered, not only here in Holland, but in other countries as well, Germany included, and there is always a great difference in the impression which a machine shop makes on a man in the trade when it is equipped with American tools and a comparison made with one equipped with tools of German or English make.

The Germans have succeeded fairly well in their attempts to copy the Americans, but for tools of equal value their prices are equally high, while anyone who is acquainted with the business can see at a glance that they are at least one and one-half to two years behind those whom they seek to imitate. If equally useful and up-to-date machine tools as the American could be offered for sale here by European manufacturers it would affect the American trade very seriously. The only fault we could lay at the door of the American makers of machine tools that they do not take sufficient notice of any special wishes expressed by European customers."

ROTARY STEAM ENGINE.

Mr. W. E. Dunkerly, general foreman of the Northern Pacific shops at Glendive, Mont., is the author of a strong rotary engine, the particulars of which he has favored the RAILWAY JOURNAL with. This engine is constructed with a reversing lever to run either way. It can also be made to cut off at any point in the cylinder by putting the reversing lever nearer the center, thereby using steam expansively. In so doing a great deal of steam and fuel can be saved. This engine has two big advantages over the Turbine engine. First, you can reverse it and run it either way; second, you can use the steam expansively.

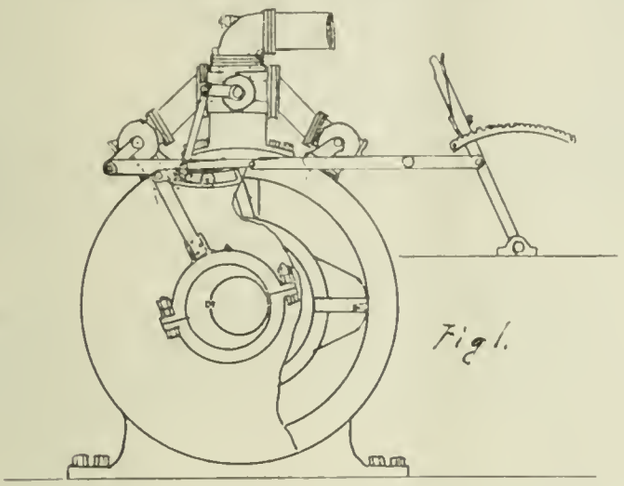
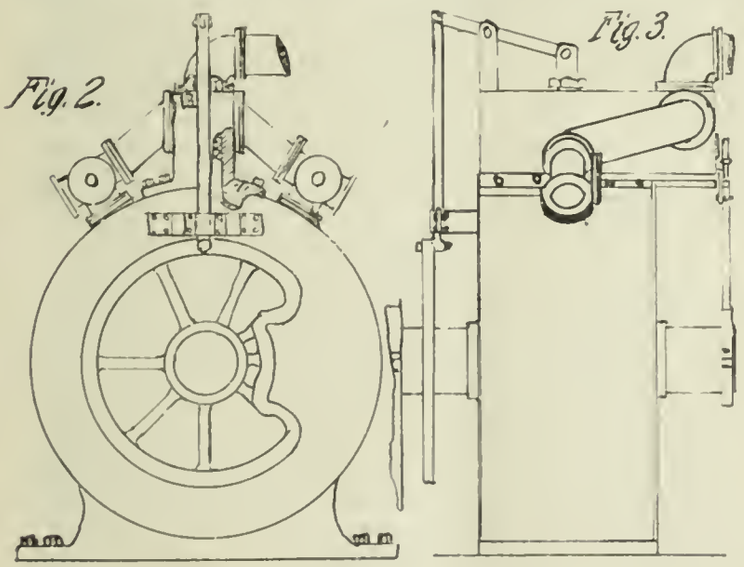
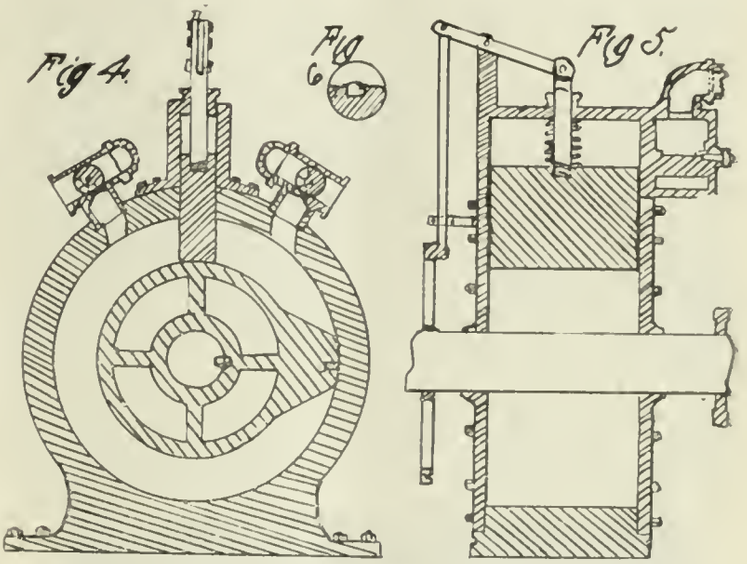


Fig. 1 is the side view and also a part sectional view, which shows the construction of the piston head and its packing. The packing in this engine is similar to that which is used in the Richardton balance valve. These packing strips are held against the walls of the cylinder by springs and against the sides of the cylinder head by springs. This prevents the steam from blowing by. These strips can either be made out of cast iron or bronze.



It will be noted that there is a back stop block which prevents the steam from blowing out to the exhaust. This also has packing strips of the same type as the piston has and is held out against the walls of the back stop chamber by springs. This back stop block rides on the revolving piston, which also forms a joint that prevents the piston from blowing by that point. The outside view of this figure also shows the reversing mechanism. It can be seen that while the steam comes through one of these valves to the cylinder, the opposite valve is open to the atmosphere, and if one throws the lever the opposite way, it will reverse the valves.

The link block is fastened to the reach rod, so that when you throw your reversing lever it also reverses the motion of your valves by this ling block being moved to the opposite end of the link. This link being hung or fastened in the center of the link to the cylinder head, which works on the same principle as the Walseth valve link. Fig. 2 shows the opposite side of figure shown on Fig. 1. This illustrates the cam wheel which operates



the back stop block. Fig. 3 shows the back stop block lever. Figs. 4 and 5 are the half sectional views of this engine. The back stop block is raised by the cam wheel, so that when the piston head goes by it will drop and ride on the revolving piston. There is also a round packing ring, which is shown on Fig. 1, which prevents the steam from blowing out around the shaft. This is held out against the cylinder head by springs.

FLUE WELDING IN BLACKSMITH SHOPS.

Mr. George Lindsay, master smith of the Evansville & Terre Haute, had the following report before the recent convention of the International Railroad Master Blacksmiths' Association:

Personally, my first introduction to flue welding was some thirty-five years ago, but they were not locomotive boiler flues, they were fire flues for marine boilers, and were made from iron plate about ⅜" thick. The flues were about 2' 9" or 3 feet in diameter, by some 10 to 12 feet long, welded throughout. At that time it was not uncommon to make steam domes and weld the crown into them. I had some three years of this sort of work. I hardly knew whether I was a blacksmith or a boiler maker. However, to get closer to the subject in hand—"Locomotive Boiler Flues—Welding." There are some fundamental points essential to success. To begin at the beginning—cleaning. There are various methods, but the rattler, either wet or dry, I like the best; the inside is clean as well as the outside. When then scale is removed on the outside only as in some of the methods many, if not all, have a coating of sulphurous deposit inside that materially reduces the chances of good welds, no matter how good the heats are, but with clean flues it is practical to do good work on them.

And the next thing is the furnace. Flue welding now is much simplified by the various designs of oil furnaces, reducing the tediousness of the work. I believe no one will dispute the assertion that oil is the fuel. Some may not have the results that others have with oil. The first furnace I ever built I had success, and the second I did not. I could not find the cause for quite a while, but finally all went well.

I have here a blue print from Mr. Northend, for which a good deal is claimed. Perhaps he will enlighten us on its merits. A great many manufactured furnaces are on the market which seem to be good from the number in use. I have had no experience with gas; perhaps we will hear from some one who has. The very best fire brick is none too good, and even that can be, and is, melted down by the intense heat, and is very important for the operator to give close attention to this point. What benefit is it to rush welding, perhaps so as not to have to begin next day to finish a set, by crowding the furnace for an hour or two, and have to spend more time in rebuilding it. Yet it is often the case.

In regard to the preparatory operations, there is not so much difference among us. True, we don't all have the same facilities, but cutting and scarfing don't cost one cent; each is very reasonable as to cost. Some say they don't scarf the flue at all. I don't care whether they do or not, if a machine roller or hammer reduces the tube to uniform size. If they do not, and have the tubes ⅛" smaller inside, it means in 300 tubes. A

few figures will tell you that 40 of them might as well be plugged as far as the area of draft is concerned, and will remain that way during all of their life. It might be said we swage the end and that reduces the area as much. However, we are discussing flue welding, not draft. Let the boiler maker settle this. Good service seems to be had by nearly all, and the cost has been brought down to a very low figure. We don't hear anything about the Bott welds now. I think they are gone for good on flues. With the prevailing facilities to work with, oil furnaces, air hammers, and roller machines, plenty of room and air, the welding of flues is very nearly down to the limit. The prices don't vary much in the different places. We don't do piece work, but feel we do the work for about the same as those that do. I have prices paid on several roads, which I will give if asked by anyone personally, as some don't seem to think publication would be fair to them. I would like very much to have others on this committee to add to this. I have been unable to get into communication with any of them, save Mr. Hughes.

Paper by James Northend, Meadville, Pa.: Our flue welding is done in the boiler shop and we are not really interested in the work. The flues are sent from the machine shop to the flue rattlers, which are just outside of the shop. Four men haul them on a three-wheeled cart of our own design. About 150 are put in each rattler, and allowed to remain for nearly ten hours.

Our next operation is to cut off the ragged end. This is done cold, by a cutter revolving on the flue.

We then heat the end to be welded in the furnace, and when hot it is brought out and jammed on a mandrel, which flares it out. Then the new end is placed on the mandrel, and the flue is jammed on to it. We then take a welding heat, and this is welded by a rotary welding machine having a speed of 230 revolutions per minute. While yet hot the flue is swedged.

The furnaces we use are our own design and construction, each furnace having three parts for heating purpose, and each part just large enough to heat one flue. We use oil for fuel, and direct blast on the furnaces.

Our swedging machine is also of our own design and construction, it having an air cylinder to operate it. The piston is connected to the upper die, the lower die being stationary. In the dies is a hole, the size to which the flue is to be swedged, and by stepping on a foot lever the upper die closes down tight on the lower one, thus squeezing the flue.

The new ends which we use are beveled, and we are now constructng a machine which will grind these ends immediately before being used. Although we have not used it, we think it will help us materially in the welding.

Open Discussion.

Mr. Lindsay: This is really not a report of the committee but a personal report, and I hope the others will take hold of it and make a report out of it. I would be pleased to have it opened for discussion.

It was moved by Mr. Storch that the reports be accepted and the subject opened for discussion. Seconded and carried.

Mr. Storch: I would like to have Mr. Hinkins explain about his flues, if he is in the house. He came giving instructions. He was formerly a master blacksmith. I have looked over the register and failed to find his name. He says that this machine that they have is a four-roller machine, but he did not give the name of the machine. I would like to hear from him and the man who brought the large flues also.

Mr. Jeffrey: What is the difference between fuel coke, oil and gas; which is the best?

President Judy: That will come out in the discussion.

Mr. Hughes: As a member of that committee I will say that part of the New York Central system, that I work for, the Lake Erie, we do all our flues piece work. In the last six months we have commenced to use five-inch safe ends. Of course it isn't long enough, we have to make the additional length. All our flues are done piece work. From the roundhouse to the rattler and from the rattler to the shop and the different operations that they go through.

Question: You do not take them out of the engine?

Answer: After they are out of the engine. He takes them from the engine, rattles them and puts them back in the engine again. He done 201 flues and finished them in nine hours.

Question: What kind of a machine have you?

Answer: Hartz.

Question: What wages do your men make?

Answer: The men make on an average $2 to $3 a day.

Question: What do you pay apiece?

Answer: One cent. We use fuel oil. Of course we use a Ferguson furnace and for the short safe ends we have to have the furnace fixed different than for the long one. If you don't the plate in the back would get so hot that the end of the flue would stick to it.

Question: Do you test the flues?

Answer: Yes.

Question: What is the percentage of the leaks in the engine?

Answer: We done eleven sets of flues for the Lima Locomotive Works and some sets we took two or three out and not over five.

Question: You average 2 to 100?

Answer: Yes; we test only by cold water pressure.

Question: Who is responsible for the leaks?

Answer: The man who welds them.

Question: You just pour the water in?

Answer: I have water pressure in the flue.

Question: What pressure do you use?

Answer: I think it is about 160 pounds.

Question: Isn't that put in with air as well as water, increasing the pressure to about 200 pounds pressure?

Answer: Yes, sir.

Mr. Lindsay: That is done with air. You put the water in the flue and put the air pressure in besides. That is the same as we do. Do you use compressed air?

Answer: We use air and blast both.

Mr. Lindsay: Referring to Mr. Northend's letter and blue print he sends, I fail to see three heating parts in this furnace. That compares about the same as the other when the annealing comes in. Mr. Kelly went over to visit their place, and I understood they used three men.

Mr. Kelly: It wasn't the Erie Shops I visited; it was the Reading shops.

Mr. Lindsay: I don't think that one man is swedging and welding 350 to 400 in ten hours. If he said he did it with a welder and a helper it would be different. If he has two holes in the furnace, I cannot see where he is going to get much benefit by having three holes in the furnace. I weld by heating the end of the stack and the short part I weld in a furnace, and while it is getting hot the end of the short flue is put in the stack which is hot and ready to receive the safe end by the time the other is welded. It only takes about forty seconds to heat the flue. We can heat as quickly as we can handle them with two holes and I do not see where three holes is necessary. The safe end we put on the mandel. The heat on the flue shrinks on the cold part. Put it in the furnace and get a light welding heat on it and tap it on the arrangement that you have behind the furnace to make it solid, and put it under the hammer. We can weld 350 a day and have it done, but every man don't do it. We may get one fellow that will do it. Some think that if they do 250 they are doing well. I have got 350 done, but not for some time. When a man mentions that he can do 350 to 400 a day I would like to have him a little more explicit. He will have to have some help to handle them.

There are some who will fit them all together; heat a number of them and jam the safe ends on them, but they don't count the time it takes in cutting them and fitting them. We have to fit and weld them at the same time and swedge them. We put them right through and are done with them, and a man don't have more than one flue on his mind at the same time. He can give his full attention to the one flue. I believe better work can be done in that way than by heating a number of them. I see no need in having three or four in the fire at a time. We weld 2¼ inch flues. They get about 50 cents more a hundred for welding 2¼-inch than they do for the 2-inch. For the 3-inch they get 45 cents more than they do for the 2½-inch, which makes them about $2.50 for a hundred.

Mr. Hughes: We have one laborer who takes care of the flues entirely. This one man does it all.

Question: How many in your crew all told?

Answer: Only three: The flue welder, his helper and his hauler. He does the cutting, expanding and everything. We rattle 60 flues at a time. We have four pieces of angle iron in the rattler. We clean 60 flues an hour—flues that are in bad shape.

President Judy: There is something attached to flues that I do not hear brought out in the discussion. What is your success when your flues leave you and go out in the engine before the engine is accepted and gone? Do you have any welds leaking, or what is your experience in having flues that have to come out?

Mr. C. A. Sensenbach: Mr. Lindsay says that one man doesn't weld 350 to 400 flues in ten hours. I say that he does. I have one man who does noting but weld flues. When he is

welding flues he does welds from 350 to 400—scarfs and opens them up. He don't scarf them and open up the same as this one here, belled out. He runs two flues in the furnace at a time. While getting a welding heat on one flue, he has the other one in the furnace to bell it out. As quick as belled out, he puts the safe end in the furnace. He puts the safe end down until he gets the second piece in the fire, he carries that back and he has the other one. He brings in his own flues and delivers them to the boiler shop. He welds from 35 to 40 an hour and there is no secret to it at all. We have a machine we build ourselves with two rollers. That flue was taken right off of the pile of flues laying in the boiler shop. I did not have him weld one for this occasion. He has a 12-inch swedge, same head, 12-inch cylinder. We use an oil furnace of our own design.

Question: Does that man work piece work?

Answer: He gets 1 cent and 2 tenths for that operation—all this work.

Question: Don't he have a man?

Answer: He does not. He hauls them from the rattler himself, and he delivers them to the boiler shop, but it is only next door. We have had a committee of Pennsylvania boiler makers out all over the Pennsylvania system east and west of Pittsburg and it was decided that Sunbury had the best method of welding flues of any they came across.

Question: What pressure do you have?

Answer: We have 125 pounds air pressure.

Voice: I do not think it is as much his special method as it is his man. What will you do when he dies?

Answer: We have a furnace that I built myself and use fuel oil. If any of you want a blue print of the furnace, you can ask the superintendent of Motive Power. J. N. Wallace is the master mechanic.

Mr. Masser: Is the weld made with the same scarf that you see there?

Answer: Yes, sir.

Mr. Masser: We ream our flue and scarf the same end and we cannot begin to get as smooth a job. You cannot discover the weld on that flue. We have one man who will do 20 an hour.

Mr. Scofield: I believe the man who just said he had a man who welds 40 flues an hour reminds me of the Irishman who said this was a fine country; that he did not have to work at all. He was to carry the brick up four story and there was a man up there who did all the work. The only thing that surprises me in the story is that he did not put them in the boiler also. He carries them from the rattler to the welder.

Mr. Jeffrey: I heard a man say 120 flues an hour out in Kansas. A man who is going to draw a heat has to have the pressure there to do it with.

Mr. Myer: How often do you have to clean the fire?

Answer: The fire runs from morning to night. We use oil, and we do not have to clean the fire.

Voice: I have seen a good many oil furnaces and they have to clean the fire every three hours.

Answer: This furnace will run a year without rebuilding it.

Question: What make of flue welder have you?

Answer: Pennsylvania railroad roller.

Question: Operated by a belt?

Answer: Both by air and with a cylinder on top, with the two smaller rollers the man does it with a foot pressure to get it to come to the size. We have a swedger 12 inches long.

ENDURANCE OF FLUE MATERIAL IN LOCOMOTIVES.

Mr. Alexander Kearney, assistant superintendent of motive power of the Norfolk & Western, presented a valuable paper on the above topic at a recent convention of the Richmond Railroad Club, the text of which is as follows:

Briefly considering the prominent features of the locomotive boiler, we find it was but a few years ago that the heavy freight locomotive carried but 140 pounds of pressure. These boilers, doubtless many of you recall, had but the single riveted foundation rings and few of them were machined, while today with boilers carrying 200 and 235 pounds of pressure, the foundation rings are of necessity double riveted and machined throughout. All straight sheets, save the back flue-sheet, have had their bracing reënforced; all circumferential seams have been substantially double riveted in place of the single course, and, in the longitudinal seams we now find triple and quadruple riveted butt welt joints supplanting the plain lap. The thickness of the material has gradually increased from ½ in. to 1½ in. in some of the sections, and it is not unusual to find ⅝ in. material in the first-barrel course. For well recognized reasons the thickness of fire-box sheets has remained in the neighborhood of ⅜ in. throughout, except the flue-sheet, which is about ½ in. for an average.

During this period of evolution the only prominent change in the flue has been its increased length, say from 13 to 20 ft. Its thickness has remained practically within the limits of 12/100 of an inch and 135/1000 of an inch. The manner of setting in the back and front flue-sheets has remained unchanged. The present method of fastening consists in rolling in the front sheet, and in addition to that operation, beading over in the fire-box sheet as it has been handled for years.

It would seem that the present type of locomotive boiler and its limitations has restricted innovations in this direction. We, of course, have in mind the water-tube type, but the present development of the art does not possess sufficient merit to make extensive experimentation attractive. It is well known that many locomotive boilers of the water tubular-type have been constructed and used abroad, but the design has not commended itself in this country.

Accepting for the present these apparent limitations, we venture to refer, in a general way, to the method of application before taking up the main theme of this paper, i. e., the flue material, its composition, and the changes which determine its endurance and governs its life under service conditions. It is assumed that this phase of the question will prove interesting if for no other reason than that it has received less general discussion.

Mr. M. E. Wells, in a very interesting paper read before the Master Mechanics' Association in 1906, covered most completely the methods in use throughout the country, and touched quite generally upon the practice abroad. I feel that we have been impressed with the marked similarity in practice the world over, and yet what a diversity of opinion we find when considering vital details, and this is doubtless because the available devices can practically be narrowed down to the sectional expander, roller and the beading tool. It is not my intention to especially discuss the tools and their manipulation, although it is of the greatest importance, and so much depends not only upon the way they are handled, but the time at which they are used. It might be said, however, that it would seem that the more general use of the expander is being favored. Retightening a flue in the sheet undoubtedly has the tendency to draw the bead with whatever tool is employed; and while such a result is not pronounced with a properly constructed expander, it is decidedly so with the roller. The destructive effect thus produced by reason of rapidly thinning the flue especially under the roller, is serious, and very materially reduces its ultimate life. To ascertain, if possible, the effect of rolling as compared with the process of expanding in determining the life of the flue-bead, a test was recently made,

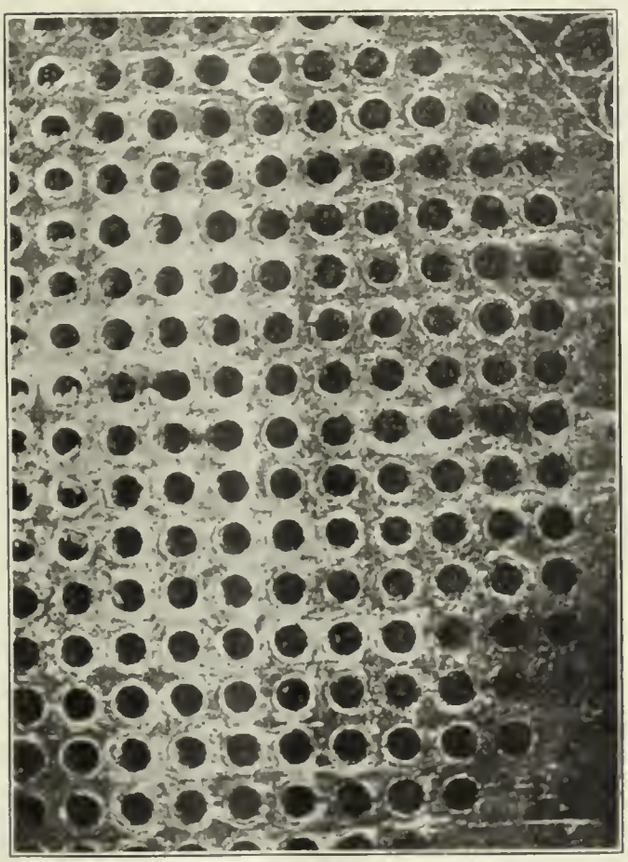


FIG. 1. SHOWING BEADS BADLY BURNED.

but the results obtained were by no means satisfactory. The mileage of the two engines was approximately the same, but the data could hardly be accepted as conclusive, as it was evident that the beading tool had not been used to the best advantage.

Figure 1 illustrates the flue-sheet of a consolidated freight engine of the Norfolk & Western railway, and is given to show how the gradual burning off of the beads has progressed. This engine was in service about eight months, and the flues were kept up by the use of the roller. It will be observed that an attempt had been made to cut the beads off the two top rows of tubes before the photograph was taken.

While any working of the bead produces crystallization we would infer that, as expander is followed up with the beading tool, the flue sheet will be more or less guttered, but this can be reduced to a minimum by proper manipulation. On the other hand, when excessively rolled, the beads are abnormally drawn and become longer, and this stock added to the bead is distorted which unduly finishes the fiber, materially hastening a gradual but certain destruction, this being so, it would appear that beads are sacrificed for flue sheets and vice versa, depending upon which tool is used and the manner in which they are handled. By careful manipulation the gutting of the flue sheet can be so controlled within proper limits as to make the general use of the expander profitable and desirable.

In this direction, an experiment was made by placing the ends of the flues flush with the fire-box side of the flue sheet, but this was done with an engine equipped with the so-called reinforcing sheets which made it a simple proposition. In the first experiment the engine was given 159 flues with the beads left off, as described, and they were all put in the lower portion of the sheet, which, as is generally known, is the location where the flues have the shortest life. In among these 159 flues, fifteen were put in with beads and they were located in the lower central portion of the group of 159 left without beads. Fig. 2 is a photograph of the flue-sheet after the engine had been in service but six months. By close inspection it is possible to pick out the flues that were beaded and those that were not. While all of the flues required a certain amount of attention, the number of times the non-beaded flues were worked upon as compared with the fifteen with beads, was as one to two and three-tenths. Encouraged by this experiment, and being able to continue in service, engines with so many of their flue-beads burnt off, other engines have been fitted up, leaving the beads off of all the flues in the fire-box end, but our observations have been so limited we do not feel that we should, at this time, attempt to draw any definite conclusions.

This brings us to the consideration of the material, a phase of the question full of interest and apparent possibilities. In our studies we have confined ourselves to the fire-box end of the flue, having been especially attracted thereto by the fact that it seems to be the vital spot requiring attention in service. Our investigations have been planned with a view of securing data to determine, not only the group of metalloids, but the constituent parts most prominent for the service to which the end of the flue is subjected. For years the trend was markedly in the direction of charcoal iron on account of its purity. Concurrently the manufacture of steel was being rapidly mastered, and it is thought by some (though the opinion is quite evenly divided) that steel offers greater possibilities for securing a more uniform product and one therefore less liable to corrosion. It is not disputed that in steel less segregation should be found, especially with respect to the carbon, and in proportion to this perfection of the material, should be reduced the tendency towards electrolysis, and hence, corrosion or breaking down of the material in the various forms wherein it is manifested. Some very interesting suggestions have been made with reference to the further perfection of steel in tubes by improving its ductility, which would possibly place it in a class of special steels. This has been carried along the line of annealing and hardening of the surface in order to make it less susceptible to corrosion and the other destroying influences.

Here it might be mentioned that some of the rarer metals, such as vanadium and titanium, have been suggested as purifying agents, in that by their use a better product can be obtained. The material is supposed to be increased in strength and ductility by the presence of the smallest amounts of these deoxidizing agents, the theory being that the major portion of the cleansing agents possibly disappears in the process of purification. However, it is not our understanding that they should replace carbon, while the latter may be somewhat reduced during the elimination of oxides of iron and nitrogen, which process should increase toughness in the intra-crystalline structure and increase the interlocking of the crystals in the aggregate.

Our investigation of flue-beads failing under mechanical punishment, due to loss of vitality, aggravated perhaps by chemical reaction, we regret, has been more limited than should be expected in view of the abundant opportunities offered, but the data we have been able to accumulate might be interesting. It is quite well known that all metals, when heated to the higher temperatures and then subjected to certain gases, will absorb them to a certain extent, holding them by mechanical occlusion, but the net product may be seriously impaired by a direct combination with the constituents in the metal proper, having formed new and very dangerous impurities.

A clearer understanding of our research cannot be had without going somewhat into detail. Upon analyzing portions of the metal removed from beads worn under the effect of service, we found, by accident, that by treating them with a diluted solution of hydro-chloric acid, a very rapid evolution of gases accompanied by an unmistakable odor of hydrogen sulphide resulted. This suggested that either the flue material was highly impregnated with sulphur in the original manufacture or that sulphur found its way into the metal from the fire-box gases. To determine this point a number of badly deteriorated beads were examined, and in every case the sulphur evolved as hydrogen sulphide, was decidedly higher than that allowed in specification material. It appears that the bead had undergone a gradual absorption of sulphur, and the amount of sulphur was greatest at the extreme

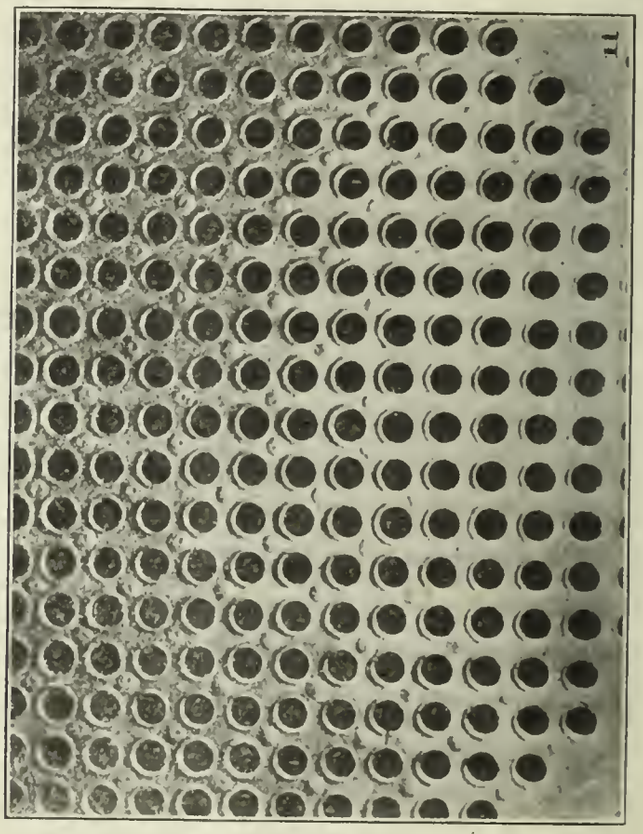


FIG. 2. FIREBOX SHEET WITH UNBEADED FLUES.

end of the bead, decreasing as we receded, until the normal sulphur content was found. Constant working and rebeading of a flue produces incipient longitudinal cracks in the beads which grow as the material is gradually weakened by crystallization. We might also infer that as the material is alternately opened and closed, a certain amount of gases, probably sulphur dioxide, nitrogen, etc., are held mechanically. While these gases are confined, a sulphide of iron may be formed along with the unstable nitrides of iron. By further reaction and decomposition, sulphide of iron is probably evolved, thereby explaining the increased amount of sulphur found by the evolution method employed. The amount of sulphur at the extreme end of the bead after the deterioration had reached an advanced stage, illustrated in photographs six, seven and eight, ran as high as .1371 per cent, decreasing to .041 per cent at a point about on a line with the fireside of the flue-sheet, which also approximates the sulphur found under the surface of the flue about 1¼ ins. back from the fireside of the flue-sheet. On the water-side of the same flue, and the same distance from the flue-sheet, the sulphur was found to have decreased to .0253 per cent, varying from that to .03241 per cent, which was about normal. Assuming that the percentage of sulphur hastens the deterioration rather than otherwise under the higher temperatures, we might reasonably expect to find the bead under certain conditions entirely deprived of its original ductility.

But, this disintegration can hardly be attributed to the abnormal amount of sulphur alone, although its absorption seems to be in progress, and to play its part in disarranging and disrupting the metal structure.

The other gases that might be referred to with products of combustion and air passing through the fire-box are oxygen, hydrogen and nitrogen, the latter two being powerful in effect but most difficult of determination. These two impurities are present in iron and steel in varying quantities from a mere trace to say .02 or .03 percent, and there seems to be but little doubt that nitrogen in unstable combination is a very dangerous impurity. When iron is heated to a very high temperature in the presence of ammonia gas (a compound of nitrogen and hydrogen), an amount of nitrogen is absorbed with the result that the physical properties of the material are entirely altered. One investigator cites a case coming within the range of our conditions, where a bar of carefully puddled iron containing .004 per cent nitrogen failed with a decidedly crystalline fracture, and also mentioned another experiment where the nitrogen was .01 per cent, and the fracture was even more crystalline, and the material more brittle. And this, as has been stated by eminent authorities, explains why steel made of the Bessemer process shows a somewhat lower ductility than corresponding grades of open-hearth steel.

Returning again to the service to which the flue is subjected, we find that gases running as high as 1400 to 1700 degrees are impinged upon the beads, and it is reasonable to expect that this condition is a favorable one for gas absorption. In a very interesting article read by Mr. Wiekhorst before the American Society for Testing Materials in 1906, on "Fire-Box Steel—Failures and Specifications," the statement is made that the temperature of the flue-sheet probably at no time exceeds the temperature of the water in the boiler by more than 50 degrees Fahrenheit, provided the circulation is sufficient to keep the water always in contact with the steel, and the parts are free from scale and mud. But it was further stated that with $\frac{1}{8}$-inch scale the metal attained a temperature of 200 degrees Fahrenheit above the temperature of the water, and with $1\frac{1}{2}$-inch scale about 400 degrees. This condition would seem to have very direct bearing and a material influence upon the flue-head.

Phosphorus is another impurity exerting a very serious influence upon the value of the material. Occurring as a phosphide of iron, it will vary from .008 per cent in some of the open-hearth steels and best grades of charcoal iron, to .015 per cent found in some special grades offered. The influence of this impurity is seldom detected in the ordinary method of static test, but it is generally recognized that a softer material may be exceedingly high in ductility under static test, and very brittle under dynamic conditions.

That fluctuating amounts of silicon and carbon in phosphorous steel increase or decrease the tendency towards brittleness seems rather an open question, and, inconsistent as the statement may sound, some very high phosphorous steels have shown up well under service conditions. Silicon is usually assumed to aggravate the effect of phosphorus. We should say in the light of our investigations that the lower phosphorous steels showing the finer structure will have greater ductility, although it does not seem to be clearly established that materials containing higher phosphorus will not give equal, if not longer, service. Silicon is usually found in such small quantities that its influence has not been given definite value, but, if any were given, it would be that of increasing ductility.

The two constituents having the most influence on the value of flue material would seem to be manganese and carbon. Manganese is generally supposed to increase strength by toughening and counteracting the influence of sulphur, diminishing the fusibility of the metal, and decreasing the tendency towards lamination.

The idea prevails that a low percentage of carbon improves the resistance to higher temperatures; a very desirable characteristic. The condition of the combined carbon and the manner in which the flue-ends are annealed temporarily improve the character of the material, thereby making the initial working incident to application less destructive. Still, it is a curious fact that many roads have already abandoned the practice of annealing, and without apparently affecting the life of the flue. That being the case, we might assume that the effect of annealing is so small that it is soon lost under the excessive temperatures to which the flue-end is subjected. The presence of a small amount of slag, which is characteristic of iron, has been claimed as the reason why the material should give a higher resistance against corrosion, but as yet we are not ready to admit that there is any marked difference between the two materials in the resistance of corrosion when carefully manufactured. The corrosion of the flue by the action of the water in the boiler under steam-making conditions has given us little trouble, and no doubt for that reason we have not made as systematic study of that phase of the subject as may later seem advisable. Whether or not corrosion by galvanic action is present, where the flue and copper ferrules come in contact, cannot be definitely stated; but we have thought it is a point that might be a determining factor in the leakage of flues.

To attempt to fix upon proportions with maximum and minimum values for the different impurities would seem to be a difficult problem, but our observations indicate that for open-hearth steel, the combined carbon should run approximately .080 per cent manganese from .20 to .30 per cent silicon below .04 per cent sulphur below .035 per cent, and phosphorus below .04 per cent. For charcoal iron the combined carbon should run approximately .080 per cent, manganese from a trace to .08 per cent, sulphur below .035 per cent, phosphorus below .040 per cent, and silicon below .050 per cent.

Corrosion, if we accept the most plausible theory, is distinctively an electrolytic action, and is influenced by the relative potential of the constituent parts of the assembled materials. Any impurity which would tend to cause segregation would proportionately vary the relative positions of the positive and negative nodes—a condition which would doubtless give the least resistance to corrosion by galvanic action at the junction of the flue and copper ferrule on the water side.

Quite extensive experiments have been made attempting to use copper flues and probably iron flues with copper-safe ends; brass flues also have been tried, but it appears that the most serious problem is to prevent the rapid destruction on the beads on account of the abrasive action of the fire-box gases and cinder. This was very well proven in a recent experiment on the Norfolk & Western railway by putting copper-safe ends in a consolidation freight engine equipped with the reënforcing sheet. The engine ran but a short time before the flues began to leak, which condition became continuous, the engine seldom going through a terminal without requiring attention. The beads were finally entirely burned off, and the ends of the flues were reduced to practically a knife-edge. The engine was finally withdrawn from service, the flues having made but 9,189 miles, which is about one-fourth of the mileage we should expect to get with iron or steel.

The softening of water for boiler purposes has claimed attention, and it is a proposition we have found necessary to study rather extensively. Experience would indicate that the amount of hard scale present is a true index to flue-leakage. In our Ohio district we encountered extremely hard water, which resulted in overcrowding our shops with power on account of flue failures; but after the installation of water-softening plants at all of the important stations a decided reduction was obtained, which at once improved the general efficiency of the power. There is hardly a question but that the presence to an extent of hydrates and carbonates in treated waters decreases the tendency towards corrosion, leaving to be controlled the amount of total solids and excess of re-agents so as to prevent boiler foaming. The use of soda ash in waters containing free acid, or any dissolved salts, such as magnesium chloride, decreases corrosion, thereby increasing the life of the flue material.

Concluding it might be said that all of these factors alluded to have their influence on the ultimate life of the flue. They are the most important factors in the proper maintenance of the engine, save when the engine is on the road, and undergoing preparation at terminals. It is well known that certain engines are brought in day after day, requiring no attention to the flues whatever, while others in practically the same service seldom make a trip without failure, and this is a condition we can only hope to improve by constant education. Notwithstanding the assertions that cold air entering the fire-box has no serious effect upon the flues, experience, at least, teaches that it is quite possible to produce, or reverse, these very conditions by the manipulation of the engine and fire. And while this range of conditions is not far removed from average service, yet they are of themselves so severe that the possibilities in the further perfection in the materials, with whatever improvements can be accomplished in workmanship, may be entirely lost.

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RAILWAY MEN WANTED.

The RAILWAY JOURNAL wants 5,000 new subscribers the coming year and is offering big commissions to railway men to act as agents. Write us for particulars.

MASTER BOILER MAKERS' CONVENTION.

The officers and executive committee of the International Master Boiler Makers' Association have selected the Sealbach Hotel, Louisville, Ky., as the official headquarters for the next annual convention, which is to be held in that city on next April, 27 to 30, inclusive. The Supply Men's Association, which is always looking after the pleasant as well as the educational features of the members and their families, has arranged to make exhibits on the third floor. The hotel has granted the following rates: European Plan—Single room, without a bath, $2 per day; two in a room, $3 per day; $1.50 extra for each additional person in the above rooms. Rooms with a bath, one person, $3, $3.50 and $4; two persons, $4, $4.50 and $5. Accommodations on the American plan can be secured at hotels near the above named hotel at reasonable rates. Further particulars and application blanks for membership can be secured from the secretary, Mr. Harry H. Vought, 62 Liberty street, New York City.

L. BORNEMAN.

To be called to take entire charge of the boiler department of a large system is a compliment to the mechanical ability of any master boiler maker. Mr. Lonis Borneman, who has recently been given the position of master boiler maker of the Chicago, St. Paul, Minneapolis & Omaha, at St. Paul, Minn., is well known to the boiler makers' fraternity of this country. He has a reputation for turning out work, and has been successful in handling some hard problems in the field of railway mechanics. Prior to taking his present position Mr. Borneman was foreman of the M., K. & T. shops at Denison, Tex., and for several years was in charge of the Cincinnati, Hamilton & Dayton shops at Indianapolis. Since he has been in the present position he has already made a record for service and the introduction of useful ideas that show for a saving in railway service.

BOILER CONSTRUCTION.

All boilermakers who wish to get the best work on locomotive boiler construction can secure through the RAILWAY JOURNAL a copy of Frank B. Kleinhans' new book on "Boiler Construction," a book of over 430 pages, handsomely illustrated and cloth bound. The book contains 334 clear cuts and five pages of large plates, illustrating different forms of locomotive boilers. There are 705 pages devoted to laying out and about 50 pages devoted to tables, rules and other valuable data. We have arranged to secure this book for our readers at cost —$3—which will be sent postage paid. It is the most complete and up-to-date work of its kind we have been able to secure for our readers, and we think it is about what every aspiring boilermaker needs. A boilermaker of forty years' experience writes: "I would not take $10 for my copy if I could not replace it." We also take orders for the Walshaert Locomotive Valve Gear.

This valuable book of 150 pages, finely illustrated, should be in the hands of every railway engineer, fireman and mechanic as well as foreman. It is devoted exclusively to the above system of valve motion. The book contains information that is put forth so simply that anyone can easily understand it. Its illustrations and diagrams alone are worth more than the price, $1.50. We also have "Locomotive Catechism" for $2.50.

RAILROAD MEN WANTED.

The RAILWAY JOURNAL wants 5,000 or more new subscribers the coming year and is willing to pay liberal commissions to railway men at terminal points to act as agents. Write us for particulars of our liberal commissions.

OPPORTUNITIES FOR FOREIGN TRADE.

The following information has been furnished the RAILWAY JOURNAL from the Bureau of Manufactures at Washington, from which further information may be secured:

An American consular officer in the far east reports that tenders will be received by the state railways in his district until April 15, 1909, for the supply of 20,000 tons of steel rails. Specifications and drawings can be obtained from the Bureau of Manufactures.

The government of the state of Parahyba, Brazil, has called for tenders for the construction and working of a system of water supply, drainage and lighting for the town of Parahyba in accordance with the conditions which shall appear most advantageous to the government.

An international competition for automatic coupling apparatus for railway wagons has been organized at Milan, Italy, on the initiative of the National College of Italian Railway Engineers, 25 Rue San Giovanni sul Muro, Milan. Competition will close on December 31, 1908.

Consul Felix S. S. Johnson forwards the details and a map covering the harbor improvements to be carried out at Bergen, Norway, and involving the expenditure of several million dollars. The specifications and map may be obtained from the Bureau of Manufactures by firms interested in undertakings of this nature.

An American consular officer in Canada reports that an inquiry has been received at his office from a local concern requesting the names and addresses of American manufacturers of calcinede-magnesite and chloride-magnesium. Prices and full particulars regarding the same should be sent to the officer from whom the report was received.

A report has been received from an American consular officer in a Latin American country inclosing a translation of a communication received from a business man in his district, in which he gives data in regard to a proposed tramway or narrow gage railway between two points in that region. Copy of this translation giving full particulars can be obtained by interested firms from the Bureau of Manufactures.

The Mexican Diario Official of October 23 published a copy of a contract entered into between the Mexican government and the Cia de Tranvias de Mexico, S. A., for the construction of a railway line in the federal district between the Hacienda of San Antonio and Huipulco. The work is to be completed within three years from the date of publication of the contract.

An American consul in a city of western Europe reports that there is a market in his district for American motor boats, and forwards the name of a business man conversant with English and who is at present interested in the sale of motor boats, with whom he suggests that manufacturers communicate. The consul states that motor engines suitable for fishing boats would find a ready market at that point.

The Brazilian Diario Official of September 13 contains a copy of a decree authorizing the Brazilian Railway Construction Company (Limited) to carry on work in Brazil. This company has been formed to take up contracts, concessions, etc., for the construction and working of railways in South American countries, to carry out all kinds of port, road, drainage, irrigation, electric-light, gas, telephone, telegraph and other works in those countries.

It is reported that the Chamber of Deputies of Argentina has taken into consideration a government measure for the proposed enlargement of the port of Buenos Ayres. The cost, which is estimated at about $1,000,000, exclusive of a sum of $80,000 to be devoted to dredging the entrance channel and replacing the present light-ships by light-houses, will have to be defrayed by means of a loan. It is thought that this measure will be passed at the present session of the Senate, and tenders will be called for the work in due course.

A report has been received from an American consular officer in a Latin-American country stating that a request has been received at his office from a local business man desiring to be put in touch with American firms manufacturing the following lines, with a view to acting as agent: Agricultural machinery, irrigating machinery, windmills, pumps, portable and stationary steam engines, wood-working machinery, metal-working machinery, turbines, portable and stationary sawmills, electric machinery, motors, etc. He is willing to furnish bank references.

A report from an American consular officer in the Levant states that a prominent citizen in his district has applied at his office for information, catalogues, etc., of concrete building mate-

rials, whereby fireproof residences for the laboring classes can be erected at moderate cost. If proper material can be furnished at satisfactory prices a good market can be developed. Catalogues and printed matter should be sent to the party making the inquiry and to the consular officer forwarding the same.

Bids will be received until December 21, 1908, by the Isthmian Canal Commission, Washington, D. C., for furnishing the following supplies: Marine boilers, Portland cement, steel, iron, galvanized roofing, sheet brass, wire screening, bolts, nuts, washers, spikes, nails, tacks, repair parts for cars, wrought-iron pipe, pipe fittings, valves, cocks, steam gages, gage glasses, oilers, door hardware, shell brackets, hasps and staples, turn-buckles, ball bearings, manila and wire rope, wire, wick packing, hose, lathe chuck, reamers, pipe cutters, stock dies, saw blades, bit braces, hatchets, closet chain, basin plugs, scrubbing and paint brushes, pulleys, oars, headlights, scales, clocks, kitchen utensils, coke, bath brick, sea-coal facing, core wash, toilet paper, etc. (Circular No. 482.)

AMONG THE SUPPLY FIRMS.

The Galena Signal Oil Company reports heavy foreign business as well as increasing trade in this country.

The Carnegie Steel Company, Pittsburg, has turned out for the Union Railroad of Pittsburg 5,000 steel ties.

Messrs. C. W. Brown, Fred Bennett and F. A. Jackson, of Joliet, Ill., have organized the Joliet Railway Supply Co.

Frank Ryman has been appointed in charge of the new Pittsburg, Pa., office of the Williams, White & Co., of Moline, Ill.

E. E. Silk has taken service with the Bettendorf Axle Company, office 1170 Old Colony building, Chicago, as representative.

The Independent Pneumatic Tool Company, Chicago, reports a heavy increase of business in the Thor tools and appliances.

Charcoal iron tubes are among the products now produced at the new mills of the Parkersburg Iron Company, Parkersburg, Pa.

The Evans & Howard Fire Brick Company, of St. Louis, is now furnishing gas retorts and complete gas benches for the trade.

The S. F. Bowser & Co., of Ft. Wayne, Ind., report heavy business the past fall, and that shipments have been unusually heavy.

The Kellogg Car & Equipment Company, of Kankakee, Ill., has completed its new plant and same is operated at full capacity.

J. R. Gordon has been made sales manager of power apparatus for the Western Electric Company with office at Atlanta, Ga.

The Franklin Manufacturing Company, of Franklin, Pa., has established a western branch at Chicago, room 1429 Railway Exchange building.

Robert W. Hunt & Co., Chicago, have the contract for inspecting the structural material for the C. & N. W. passenger station at Chicago.

Warren L. Boyer has been made assistant in the engineering department of the American Brake Shoe & Foundry Company, of Mahwah, N. J.

Plans are being formulated by the Westinghouse Electric & Manufacturing Company that will soon take the plant out of the hands of a receiver.

Joseph Karkham has been made general sales agent of the Sellers Manufacturing Company, with office in the Western Union building, Chicago.

A. C. Moore has been made manager of Northwestern district of the Safety Car Heating and Lighting Company, office in the Monadnock block, Chicago.

The National Vacuum Cleaning Company, of Dayton, O., is turning out a splendid device for car cleaning, known as the Green electrically-driven vacuum car cleaner.

Messrs. M. H. Powell, Jas. F. Dagley and John F. Brems, of Chicago, have organized the Western Railway & Contractors' Supply Company, with a capitalization of $50,000.

Messrs. W. S. Newhall, Robert M. Morgan, C. S. Beardsley, O. G. Armstrong and F. H. Forest are the incorporators of the Cleveland Railway Supply Company, of Cleveland, O.

The Illinois Car & Manufacturing Company has been incorporated in Chicago by P. H. Joyce, P. J. Finnegan and George J. Knelder, all of Chicago. Capital stock is $100,000.

The Corrugated Bar Company is the successor of the Expanded Metal & Corrugated Bar Company, of St. Louis. The new office is in the National Bank of Commerce building, St. Louis.

The Detroit Stoker & Foundry Company, Detroit, Mich., has issued an attractive illustrated catalog of forty-eight pages, descriptive of the Detroit automatic stokers, and its value as a fuel saver.

Col. J. Will Johnson, of the Pyle National Electric Headlight Company, Chicago, gave an interesting talk on headlights before the Southern & Southwestern Railway Club at Atlanta, Ga., last month.

The Westinghouse Diary for 1909 is out, as a reminder of the many well-known devices and machines manufactured by the Westinghouse Companies. It is neatly bound and just fits the vest pocket.

The Safety Car Heating & Lighting Company, of New York, report increasing business. The ninety-four plants of the Pintsch Compressing Company are operating at 90 per cent of their capacity.

"The Barium Chloride Process for treating Blue Chip Highspeed Steel" is the title of an attractive illustrated booklet issued by E. S. Jackman & Co., Chicago, agents for the Firth-Sterling Steel Company.

All railway manufacturing and equipment firms will do the RAILWAY JOURNAL a favor by keeping us posted on changes, new equipment they handle, etc. We want to make this an interesting page for our supply friends.

The Western Electric Company has published a booklet on lead covered telephone cable. This booklet covers the telephone cable field comprehensively, taking up the subject of dry core cable, insulation resistance, electrostatic capacity, lead sheath, aerial and underground cable, submarine cable, interior cable, etc.

NEW EQUIPMENT.

The Cincinnati Northern will soon contract for six freight engines.

The Duluth & Iron Range has been figuring on 1,000 steel ore cars.

The Western Maryland has ordered ten consolidation and switching engines.

The Cotton Belt has ordered twenty-five locomotives from the Baldwin works.

The Baldwin Works are building twelve locomotives for the Lehigh & Hudson River.

The Wabash-Pittsburg Terminal has been figuring on twelve consolidation locomotives.

The Chicago Great Western has been figuring on prices for repairing 2,500 freight cars.

The Hocking Valley will be in the market early in the year for fifteen locomotives.

The C., H. & D. has ordered ten switch engines for the American Locomotive Company.

The Dominion Car and Foundry Company is building 500 box cars for the Canadian Pacific.

The Northwestern of India is investigating in this country the price on about fifty locomotives.

The Baldwin Locomotive Works are building a locomotive for the Missouri, Oklahoma & Gulf.

Specifications are being prepared by the Union Pacific for two heavy Mallet passenger engines.

The Virginia Railway has been figuring on fifteen large freight engines, also for 1,500 coal cars.

The Harriman lines have ordered 1,830 box cars and contemplate ordering 1,500 refrigerator cars.

The Delaware, Lackawanna & Western, according to report, will order 300 box and as many hopper cars.

The Rock Island will soon place orders for thirty-five locomotives and seventy passenger cars of different types.

The Missouri, Kansas & Texas has ordered sixteen ten-wheel passenger engines from the American Locomotive Company.

The Erie is having 1,000 steel underframes made for repairing freight cars. The Ralston Steel Car Company has the contract.

The Colorado, Texas & Mexico office at St. Louis is figuring on ten new passenger cars, some freight cars and several locomotives.

The shops of the Northern Pacific at South Tacoma, Wash., will build 1,600 freight cars for the road. The company has ordered sixty-three cars for passenger equipment, also.

The William J. Oliver Manufacturing Company, of Knoxville, Tenn., has completed an order for twenty dump cars for the Nevada Consolidated Copper Company, of Ely, Nev., and is building fifty steel dump cars for the Panama canal.

All railway men visiting Chicago are welcome to make the RAILWAY JOURNAL office their headquarters while in the city and to have their mail addressed in our care.

CONVENTIONS IN JUNE.

The Master Mechanics' Association will hold their next annual convention at Atlantic City on June 16 to 18 inclusive, and the Master Car Builders' will be held on June 21 to 23 inclusive. The Marlborough-Blenheim hotel will be the official headquarters.

The International Railway General Foremen's Association has decided to hold the next annual convention at Chicago. The hotel and dates have not been selected. Particulars will be published in the RAILWAY JOURNAL as soon as decided upon.

SANTA FE SHOP FORCE AT WINSLOW.

Winslow, Ariz., is a place we do not hear much about, as it is only a division point on the Santa Fe out in a desert country where there is not much stir nor much history made. However, it is an important point on a great transcontinental line, as the division shops are located at that point, and the men who live in that oasis deserve credit, being, as it is, out in the world so far from any large city and with no neighboring towns of any consequence. The RAILWAY JOURNAL is pleased to publish the picture of the Santa Fe shop force at that point. Mr. C. B. Hathaway is general foreman; Mr. J. N. Christy is roundhouse foreman, and Mr. George Williams is car foreman. Those who enjoy the splendid service of the Santa Fe en route to California or returning from there are indebted to this group of able mechanics for the excellent condition the Santa Fe equipment is in. They are the men behind the tools that make for comfort, speed and safety in travel and to whom special credit is due.

SANTA FE SHOP FORCE AT WINSLOW, ARIZ.

FROGS AND CROSSINGS.

The following paper was read before the recent convention of the International Railroad Master Blacksmiths' Association by T. F. Keane:

As chairman of the committee on frogs and crossings, it would give me great pleasure to give you a little history of the development of switches, frogs and crossings, but I am sorry to say the blacksmith shop in our works does not manufacture the completed article but only the necessary forgings and, therefore, my knowledge on this subject is somewhat limited.

There are many accidents from split switches; but if one considers how many split switches are in service, the proportion of those causing trouble seems very small. The most fruitful cause of trouble with point switches has been from a desire to economize in slide plates, both in the number of plates and in making the plates of too cheap construction. Originally the plates were put under the switch only on the few ties at the point where the side of the head of rail is planed away, leaving the heel end of the switch resting on the ties. The heel end of the main track switch rail when not supported by plates will naturally cut in the tie and soon become much lower than the stock rail, and a train trailing through the switch, particularly with a grooved tired wheel, under these conditions is likely to strike the turnout rail on the side and force it out instead of riding over on top of it, as it should. To overcome this, different methods of elevating the switch rail by vertical bends have been tried; but the surest way is to put a heavy plate on each tie under the length of the switch. The pressed steel riser plate, very commonly used, is not at all satisfactory. If these plates are made of ½-inch stock with ¼-inch riser pressed up, the plates must be more than half cut in two right at the vital point at the base of the stock rail. Many standards call for this riser to be ⅜-inch

high, and some roads use plates only ⅜-inch thick, so with the plate nearly cut in two at the stock rail it is not surprising that they buckle and break in service, thereby causing trouble. These plates are shown on cut of our No. 10 switch.

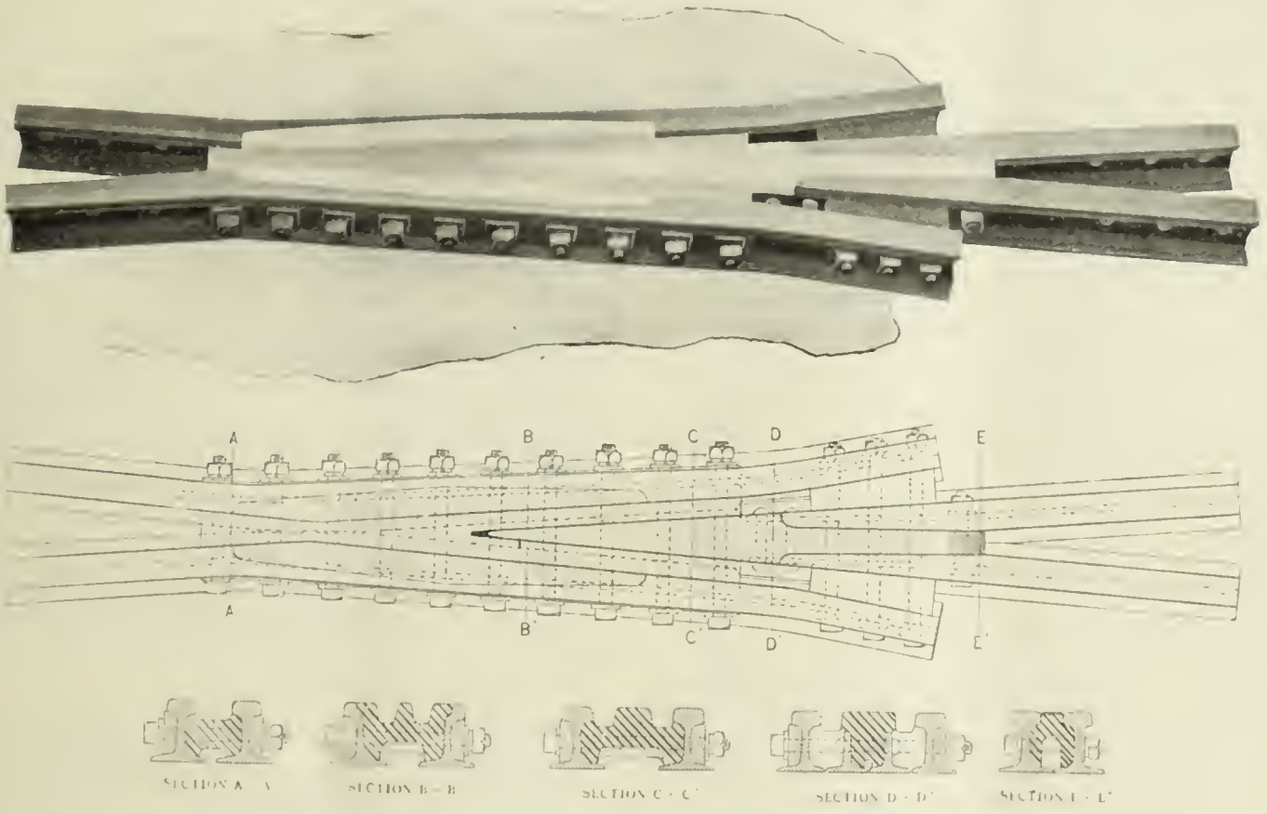
The market is open for an economical design of plate which will overcome this difficulty. We make forged riser plates for the Central railway of New Jersey and some other roads, by drawing plates 7/16, ⅝ and ¾ inch thick out to ½ inch thick where the stock rail rests, making a very strong and effective riser plate; but the cost is very considerably higher than the pressed steel plate. Unfortunately for the blacksmith, our people have found the most economical heavy riser plate to be a special rolled section 5 inches wide by ¾ inch thick for 3 inches in the middle and ½ inch thick for the balance of the plate. This plate is shown on this blue-print I have here with me.

We plane a seat out of the 3-inch section for the stock rail and brace, leaving a positive stop with a square shoulder on both sides of the stock rail to hold it to gauge, as shown on our No. 11 switch cut. With this plate a switch with a level base through its entire length is recommended and the elevation run off in the lead rails. A switch with a level base is of considerable advantage in assuring a uniform bearing on the ties and you do not see the switch rail working up and down as much under every repair of wheels as with a switch rail with vertical bends, under which it is almost impossible to place the ties and keep them correctly for uniform bearing.

The reinforced 15-foot switch is the most popular now, but on account of the rails being rolled in 33-foot lengths there is a good deal of talk of adopting 16-foot 6-inch lengths, so that the points will cut economically without waste, but there have not been many roads that have done this as yet. It is rather a surprising fact that there are fewer breakages with switch rails that are weakened by being planed away than in the main track; still a breakage of a switch point would be much more serious on account of not being spiked than with main track rail if it were not for the reinforcing bars.

Two rods are universally standard on the 15-foot switch rails. There are many types of making these rods adjustable which make quite a little work for the blacksmith, but our people advocate using rigid switch rods and making the adjustments in the moving rods and in the switch stands with which adjustments all lost motion resulting from wear or other cause can be most readily taken up and both points can be adjusted to fit the stock rail.

I have a pamphlet here illustrating the adjustable throw automatic switch stand and adjustable moving rods, which I should be pleased to show anyone interested. One objection in having the switch tie bars adjustable is that frequently the trackmen in making adjustments will adjust only one rod, leaving the points out of line.



RAMAPO MANGANESE HARD CENTER FROG.—Design No. 1.

There are various styles of switch clips for holding the switch tie bars. We have for many years furnished our No. 1 style clip and rod with a long jaw formed by jumping on a short piece and folding over such as illustrated on our cut; but we now have more call for the pressed steel side jaw clip, made from one piece of metal, and we furnish these clips with jaws made 4 inches long, as shown on our No. 11 switch cut. Our people believe this No. 11 switch is the best switch on the market for all-round service and embodies many of the various features I have spoken of.

I also have with me a cut of our No. 1 switch, which is equipped with Manganese steel points. Anyone particularly interested in this work would find the description attached to this cut of interest.

Mr. Uren gave us, at our convention in Chicago in 1906, a very instructive history of the rigid and spring rail frogs, and I would respectfully refer those specially interested to read his little talk, which can be found in the "Book of Proceedings."

I have a plan here of the spring rail frog which our people have been making for the last fifteen years or more and which has proven itself of most effective design. It is an economical frog to build, and it is the standard frog used by the Interurban Railway Transit Company of New York City, both in its subway and elevated tracks, and also as standard on many of the trunk line roads, including New York, New Haven & Hartford. Some of the roads have adopted certain modifications, such as additional tie plates, which while they add slightly to the cost are a very good feature.

There are many other types of spring frogs which we manufacture, but in our limited time it would not seem wise to bring them up now.

In regard to rigid frogs made of Bessemer rail, our people prefer the bolted plate frog with plate large enough to cover two ties under the point of the frog and a tie plate on the next tie on either side; however, where the service is hard, such as at terminals, of course the manganese steel center frog is the thing. I have with me a couple of cuts illustrating our design of this frog.

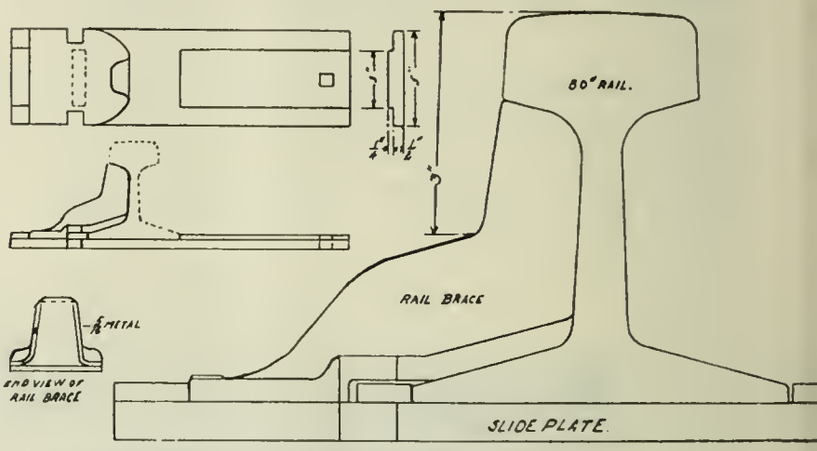
In the rigid frogs there is very little work for the blacksmith, as the rails are cut in the machine shop with planer, slotters, etc., and the manganese centers cast or ground to a smooth finish.

The style of construction of crossings depends to a large extent on the angle. For angles up to 30 degrees and track on tangent, a single rail bolted plate crossing with easer or reinforcing rails is as good as can be had, such as shown on our plan S-150711, unless the service is sufficient to warrant putting in a crossing with manganese centers, such as shown on our plan S-290710. If the tracks are curved to a short radius, then, of course, a continuous guard rail is necessary.

For angles above 30 degrees a three-rail type of crossing is advisable. Between 25 and 40 degrees we make the three-rail crossing with mitre points, such as shown on our plan S-40712 and plan S-140711. The difference between these two plans is that the former is equipped with cast iron filling blocks which fit the web of the rail very accurately; the other plan is shown with rolled steel filling blocks which possess the advantage of being continuous through the frog centers; but it is impossible to get as good fit with the rolled steel blocks where there are irregular fits to be made, as with the cast blocks. For angles above 40 degrees we make the three-rail type of crossing, what is termed butt-joint—the rails in one track being continuous and the rails in the other track butting against same, such as shown in cuts on pages 21 and 23 of our catalogue. In these crossings the filling is rolled steel, as the flangeways are straight and there is no special fitting except where the rails butt. These crossings are all equipped with heavy forged reinforcing straps or knees, bolted in the corners, and are held to plates preferably by clips passing over the base of rail and secured to plate by bolts. We also make the three-rail type crossing with manganese centers, but I have no blue-print illustrating this with me.

These plans, of course, all apply to heavy section of rail, such as 100 lb. down to 60 or 50 lb. With the light rail sections, such as 30 lb., etc., we make the frogs and crossings riveted plate type, such as shown on page 10 of our catalogue. The leverage on the heavy rails due to their height is so great that the rails cannot be held securely to plates by rivets only, and the filling blocks in the flangeways with bolts are necessary.

Manganese steel is one of the most interesting metals and one about which there is comparatively little known as yet. Our people have a process of rolling manganese steel and have rolled some manganese steel rails, plates, bars, etc., and we have forged the bars into various



SOLID ROLLED SWITCH SLIDE AND MALL IRON BACK.

shapes for experimental purposes and find it is a comparatively easy metal to handle as one becomes more acquainted with it. As the railroads are constantly increasing the weights of their equipments, it is necessary to find a more durable metal than Bessemer and soft steel, and the field of manganese steel has as yet scarcely been touched upon. The development in this metal will probably be a surprise to many in the next few years.

ORDERS FOR STEEL RAILS.

The Wabash is to order 15,000 tons of rails soon.

The Atlantic Coast Line has ordered 25,000 tons of rails.

The Burlington will contract for 40,000 tons of steel rails for 1909.

The Chicago & Northwestern is to order soon about 32,000 tons of rails.

The Colorado & Southern has been getting prices on 15,000 tons of steel rails.

The Montreal & Southern Counties has contracted for rails for sixteen miles of track.

The Cincinnati Southern has contracted for 4,000 tons of steel for a viaduct in Cincinnati.

The Monterey Iron & Steel Company, Monterey, Mex., has orders for 75,000 tons of rails for the National Railways of Mexico.

The Dominion Iron & Steel Company of Canada has contracts for making 16,000 tons of rails for the Australian Government, said to be the first rails ordered in Canada for Australia.

MECHANICAL NOTES.

The Brighton Car Company, of Chicago, has purchased a tract of land near Minneapolis on which to erect a car manufacturing plant.

J. H. Young, general superintendent of the Southern Pacific, has invented a lubricator device for lubricating wheel flanges and rails where needed on curves.

The proceedings of the International Railroad Master Blacksmiths' Association is from the press, containing the full report of the Cincinnati convention. The work is splendidly compiled and is a credit to the association. This organization has accomplished a great deal in its field since it was founded.

An officer of the Pennsylvania authorizes the statement that the amount of the contract recently awarded to the Westinghouse Company, which covers the North River tunnels, the terminal on Manhattan island, the tracks crossing under the island and the East River tunnel, together with the lines necessary to reach the passenger yard in Long Island City, is between $3,500,000 and $5,000,000.

COMBUSTION PROCESSES IN LOCOMOTIVE FIREBOXES.

Dr. F. J. Brislee recently presented an interesting paper on the above topic before the British Institution of Mechanical Engineers, which from a practical scientific standpoint is a valuable production worthy of study by locomotive engineers, boilermakers and all railway mechanics connected with the locomotive department. Dr. Brislee says:

Ever since the signal triumph of Stephenson's "Rocket" at the Rainhill trials in 1829, the exhaust steam from the cylinders has been utilized for increasing the draft in the firebox. The employment of the "steam-blast" for accelerating combustion, so as to render the rapid production of steam possible, has been universal so far as locomotives are concerned, but in the majority of other boilers the steam-blast has been replaced by some form of forced or induced draft by means of a fan. The employment of the steam-blast on the locomotive, where space is limited, has the great advantage of simplicity, although, on account of its intermittent character and its dependence upon speed, etc., it leaves much to be desired as a means of supplying air to the fire-box. Many investigations of the efficiency of combusion taking place in stationary, marine or other boilers, under both natural and forced draft, have been made; but few, if any, have been made upon the products of combustion of locomotives during actual running, althongh the charge of emitting poisonous gases was made against the locomotive practically at the time of its first successful introduction.

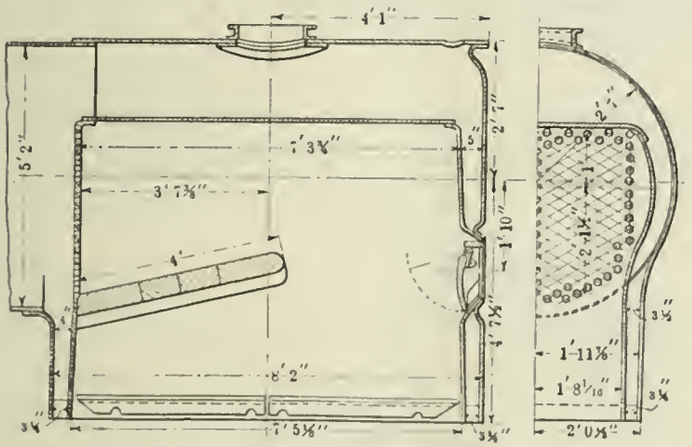


FIG. 1.—FIRE-BOX "EXPERIMENT" CLASS

The following investigation was undertaken for the purpose of determining—

(1) The efficiency of the combustion of the fuel.

(2) The loss of carbon due to the production (or loss) of carbon monoxide.

(3) The variation of the products of combustion due to variations in the demands made upon the engine, e. g., weight of train drawn, speed, gradient.

(4) Whether chemical equilibrium conditions corresponding to the fire-box temperature are ever attained.

(5) The variation of the products of combustion with the depth of fire.

Two locomotives were employed in this investigation which differed in size of fire-box, especially as regards depth, size of boiler and diameter of driving wheels. The first experiments were made upon a London & North-Western Railway locomotive of the "Precursor" class, first introduced in 1904, and the second series upon a London & North-Western Railway locomotive of the "Experiment" class, which came out in 1905. These two locomotives differ in size and depth of fire-box, the fire-box of the "Experiment" class being considerably larger than that of the "Precursor" class, and only about one-half as deep; hence the effect of working with a thinner fire will be seen from the analysis of the products of combustion. Figs. 1 and 2 show sections of the fire-boxes of these two classes of locomotive, together with the leading dimensions.

The first point investigated was the variation of the products of combustion with varying speeds, weight of train drawn and gradients. The results showed that the loss due to the formation and escape of carbon monoxide is greatest at comparatively low speeds, with late cut-off and strong blasts at long intervals, as compared with much shorter intervals when running at high speeds, and at speeds of about 60 miles an hour, the quantity of carbon monoxide in the products of combustion is practically nil. Further, in most cases, there was more than sufficient oxygen present to burn the carbon monoxide completely, and the escape of this from complete combustion is due, in all probability, to the extremely rapid rate at which the gases are swept through the tubes and cooled down, so that the oxygen and carbon monoxide had no time to combine. The presence of carbon monoxide in the products of combustion at the low speeds is due to the intermittent character of the air supply. The escape of the exhaust steam up the funnel takes place in a series of "puffs," and the interval between each "puff" varies with the speed of the train, hence the products of combustion are left in contact with the strongly-heated fuel for a time interval depending upon the rapidity with which the "puffs" follow each other, and so partial reduction of the carbon-dioxide to monoxide takes place. Then, at the next "puff" the gases are drawn out of the fire-box, along the fire-tubes and into the smoke-box before the complete combustion of the carbon monoxide has time to take place. The effect of the gradient is that of reducing the speed of the train, thereby increasing the length of time between each "puff;" hence the time during which the products of combustion remain in contact with the incandescent fuel is also increased. The heavier the train, the greater is this slowing down when ascending a gradient; hence the proportion of carbon monoxide which escapes combustion is greatest when the engine is working heavily, e. g., drawing a heavy train up a steep gradient.

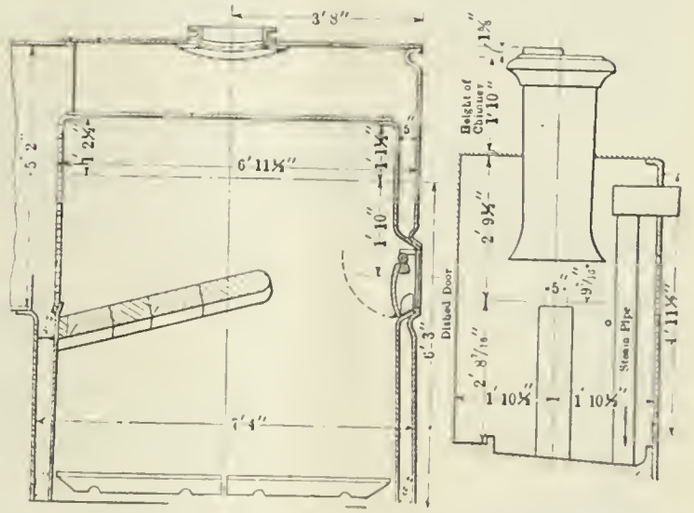


FIG. 2.—FIRE-BOX AND FRONT END "PRECURSOR" CLASS.

The vacuum in the smoke-box was next measured. The first measurements showed that it varied with the time of cut-off by the slide-valve, as well as with the extent to which the regulator (throttle) was opened. It depended also upon the resistance of the fire to the passage of the air. The vacuum reached, under certain conditions, was 10 to 12 inches of water, but on the average it was 5 to 7 inches of water, the highest figures being only very occasionally reached, and were never steady, and were not maintained for more than a few minutes. When the fire-door was opened for firing, the vacuum sank from 5 or 7 inches to 1 or 2 inches, the air entering freely through the open fire-door. At high speeds the vacuum was smaller, as a rule about 3 to 5 inches, but steady, and then the air supply approximated to a steady current, and combustion was complete, the amount of carbon monoxide being very small, or nil.

Consul Alfred A. Winslow, of Valparaiso, furnishes the following information concerning the state railways of Chile: The estimated cost of the government railways under construction, and for which contracts are about to be let, reaches $65,627,000 gold. It is intended that all these lines shall be completed within the next five years. To this must be added many millions for rolling stock during that time, which means that the investments for railway improvements during the next five years will come up well toward $100,000,000. Here is a great opening for American capital and material.

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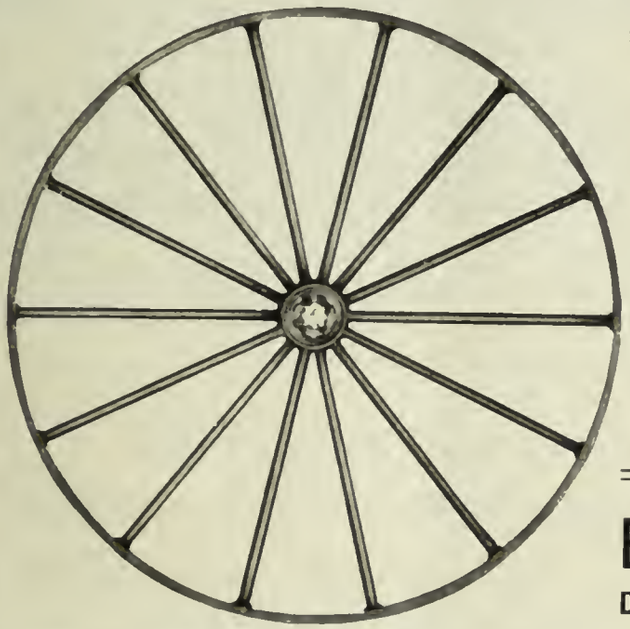

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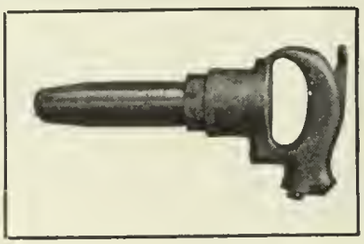

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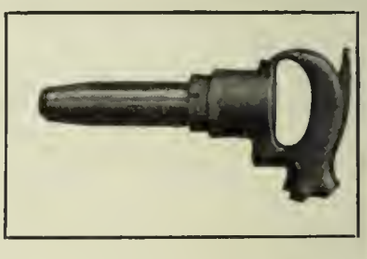

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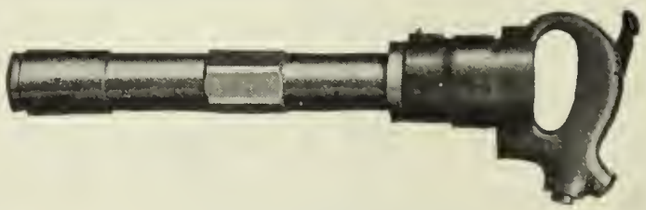

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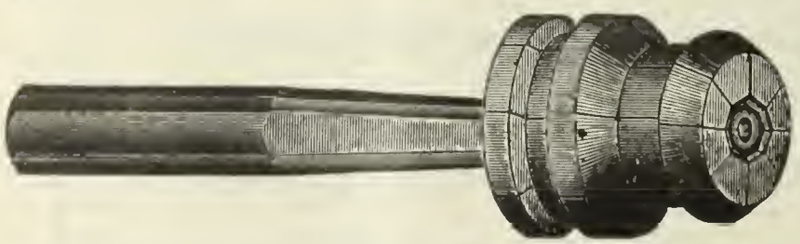

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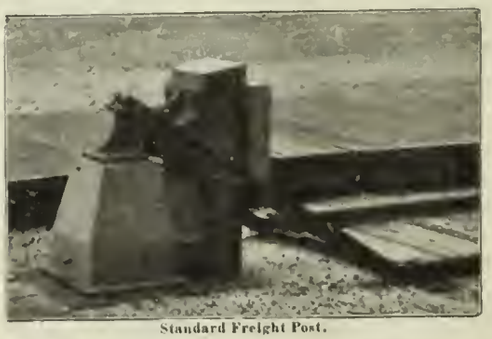
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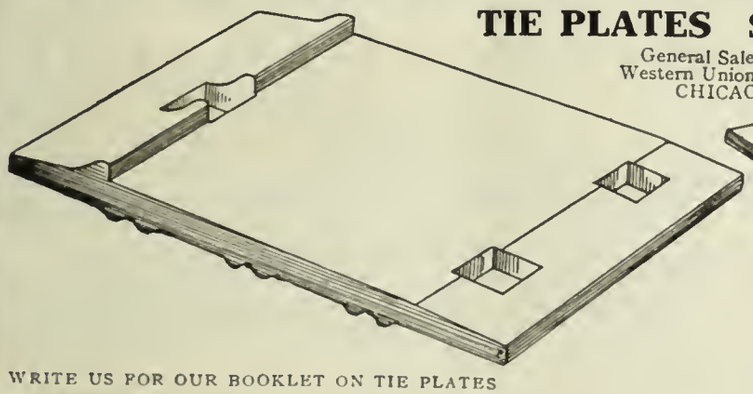

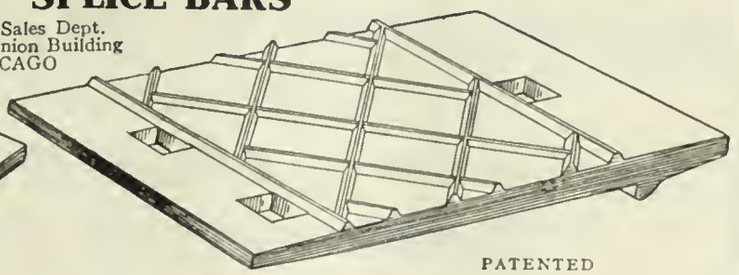

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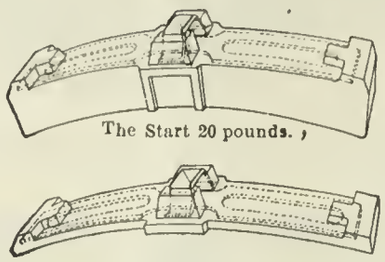

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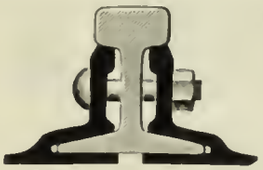
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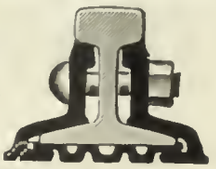
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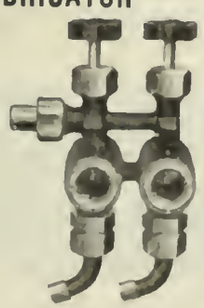
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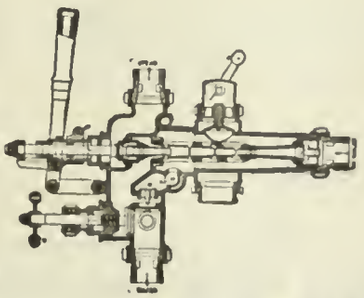

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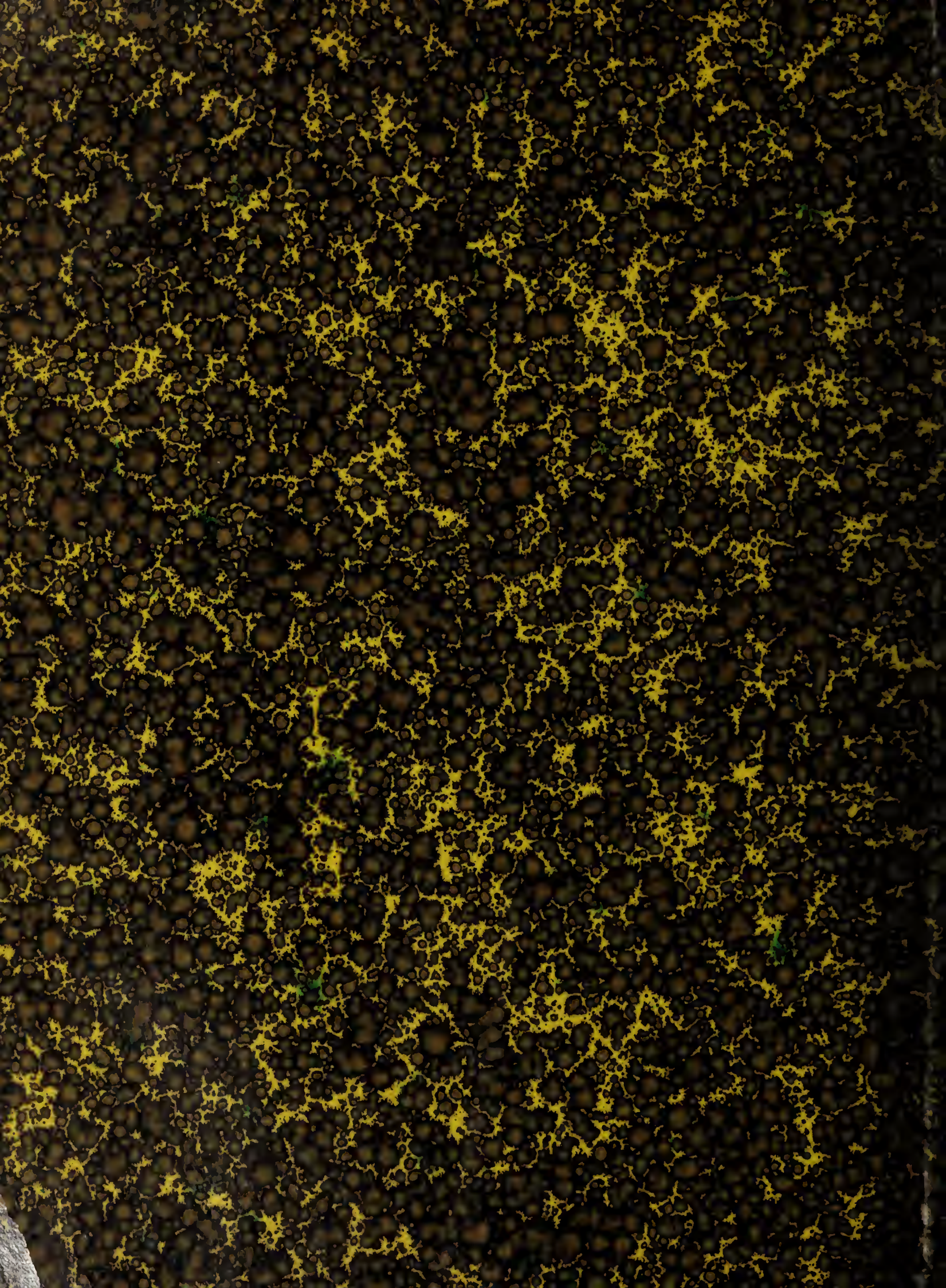

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